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California Regulations Related to Drinking Water

August 2025

Sections amended, adopted, repealed, or not included in the previous compilation of these regulations (October 2024) are highlighted in yellow. Significant revisions in this edition reflect:

- *Fee schedule changes in section 64305 of Title 22 that became effective October 2024; and*
- *Changes to Cross-Connection Control regulations in Articles 1 and 2 of Title 17 and in section 64654 of Title 22 that became effective November 6, 2024.*

Non-substantive revisions may not be highlighted. Water recycling regulations can be viewed in the "Recycled Water-Related Statutes and Regulations" section on the State Water Board's California Drinking Water-Related Laws webpage.

Regulation text and dollar amounts pertaining to operator examination fees and annual fees for public water systems are current as of the date of publication. Current fee schedules can be verified by consulting the latest print or online version of Title 22 of the California Code of Regulations (CCR) and at:

- *https://www.waterboards.ca.gov/resources/fees/stakeholder/ and*
- *https://www.waterboards.ca.gov/drinking_water/certlic/occupations/documents/opcert/feeslist.pdf.*

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CALIFORNIA CODE OF REGULATIONS

Title 17. Public Health

Division 1. State Department of Health Services

Chapter 5. Sanitation (Environmental)

Subchapter 1. Engineering (Sanitary)

Group 4. Drinking Water Supplies

Article 1. General [Repealed]

Article 2. Protection of Water System [Repealed]

Article 5. Domestic Water Supply Reservoirs

§ 7625. Definitions.

(a) "Domestic water supply reservoir" as used herein means a reservoir used to impound or store water intended solely or primarily for domestic purposes.

(b) "Distribution reservoir" as used herein means a reservoir, directly connected with the distribution system of the domestic water supply project, used primarily to care for fluctuations in demand which occur over short periods of from several hours to several days, or as local storage in case of emergency such as a break in a main supply line or failure of pumping plant.

§ 7626. Application for Permit.

(a) Recreational use on and around a domestic water supply reservoir is prohibited unless specifically authorized in a water supply permit.

(b) Within 30 calendar days of receipt of an application for a permit or petition for permit modification pursuant to Section 116525 or 116550, Health and Safety Code, the State Board shall inform the applicant in writing that it is either complete and accepted for filing or that it is deficient and what specific information or documentation is required to complete the application. An application is considered complete if it is in compliance with the requirements of Section 116530, Health and Safety Code. For proposed water system improvements, new water systems or a "project" as defined in Section 15378, Title 14, California Code of Regulations where environmental documentation is required, a copy of such documentation shall be included in the application.

(c) Within 90 calendar days from the date of filing of a completed application, the State Board shall inform the applicant in writing of its decision regarding an application.

(d) The State Board's time periods for processing an application from the receipt of the initial application to the final decision regarding issuance or denial of a water permit based on the State Board's actual performance during the two years preceding the proposal of this section, were as follows:

(1) The median time was—7.5 months
(2) The minimum time was—1.5 months
(3) The maximum time was—85.5 months

§ 7627. Data to Accompany Application.

(a) The application for a permit to allow recreational use shall be accompanied by detailed information, including but not limited to, the following:

(1) Maps showing the reservoir area, including location of water works facilities, area to be open for recreational use and location of sanitary facilities to be provided for the public.

(2) Data on the size of the reservoir, length of time of water storage in the reservoir, topography of the reservoir site, prevalence of wind-induced currents and other factors that may affect the quality of the stored water and movement of possible contaminants to the water intake.

(3) Data on the size of the protective zone to be provided between the area of recreational use and point of water withdrawal for the water supply.

(4) A statement describing the type of recreational use proposed and the maximum number of persons, cars, vehicles and boats allowed in the area.

(5) A description of the water supplier's program, personnel and financing to control the recreational use, including maintenance and operations of recreational and sanitary facilities, and supervision of the people permitted in the area.

§ 7629. Reservoirs for Which Permits May be Granted.

When the State Board finds that the intended recreational use will not render the water supply as delivered to the consumers impure, unwholesome or unpotable, permit for such use will be issued. Subject to the State Board findings the following types of domestic water supply reservoirs may be used for recreational purposes:

(1) Reservoirs from which water is continuously and reliably treated by filtration and chlorination; provided that for smaller water systems, under special circumstances satisfactory to the State Board, approved dual chlorination may be acceptable;

(2) Reservoirs from which water is withdrawn by open channels or other conduits and subsequently stored again in reservoirs falling in the category of Section 7629(1) before reaching a distribution reservoir, or before entering the distribution system or a consumer's premises.

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Title 22. Social Security
Division 4. Environmental Health
Chapter 1. Introduction

Article 1. Definitions

§ 60001. Department.

Whenever the term "department" or "Department" is used in this division, it means the State Department of Public Health, unless otherwise specified.

§ 60002. State Board.

Whenever the term "State Board" is used in this division, it means the State Water Resources Control Board, unless otherwise specified.

§ 60003. Director.

Whenever the term "director" is used in this division, it means the Director, State Department of Public Health, unless otherwise specified.

Article 2. Monitoring and Reporting Requirements — Scope

§ 60098. Monitoring and Reporting Requirements.

The phrase "The monitoring and reporting requirements as specified in regulations adopted by the department that pertain to maximum contaminant levels" as used in Health and Safety Code section 116275, subdivision (c)(3) includes, but is not limited to, the requirements of Articles 18 and 20 of Chapter 15, Title 22, California Code of Regulations.

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Chapter 2. Regulations for the Implementation of the California Environmental Quality Act

Article 1. General Requirements and Categorical Exemptions

§ 60100. General Requirements.

The Department of Health Services incorporates by reference the objectives, criteria, and procedures as delineated in Chapters 1, 2, 2.5, 2.6, 3, 4, 5, and 6, Division 13, Public Resources Code, Sections 21000 et seq., and the Guidelines for the Implementation of the California Environmental Quality Act, Title 14, Division 6, Chapter 3, California Administrative Code, Sections 15000 et seq.

§ 60101. Specific Activities Within Categorical Exempt Classes.

The following specific activities are determined by the Department to fall within the classes of categorical exemptions set forth in Sections 15300 et seq. of Title 14 of the California Administrative Code:

(a) Class 1: Existing Facilities.

(1) Any interior or exterior alteration of water treatment units, water supply systems, and pump station buildings where the alteration involves the addition, deletion, or modification of mechanical, electrical, or hydraulic controls.

(2) Maintenance, repair, replacement, or reconstruction to any water treatment process units, including structures, filters, pumps, and chlorinators.

(b) Class 2: Replacement or Reconstruction.

(1) Repair or replacement of any water service connections, meters, and valves for backflow prevention, air release, pressure regulating, shut-off and blow-off or flushing.

(2) Replacement or reconstruction of any existing water supply distribution lines, storage tanks and reservoirs of substantially the same size.

(3) Replacement or reconstruction of any water wells, pump stations and related appurtenances.

(c) Class 3: New Construction of Small Structures.

(1) Construction of any water supply and distribution lines of less than sixteen inches in diameter, and related appurtenances.

(2) Construction of any water storage tanks and reservoirs of less than 100,000 gallon capacity.

(d) Class 4: Minor Alterations to Land.

(1) Minor alterations to land, water, or vegetation on any officially existing designated wildlife management areas or fish production facilities for the purpose of reducing the environmental potential for nuisances or vector production.

(2) Any minor alterations to highway crossings for water supply and distribution lines.

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CROSS-REFERENCE TABLE

NOTE: Sections in Chapters 1 and 2 of Division 4 were renumbered by an order filed 5-1-79 which created a new Chapter 30. The following cross-reference table showing old and new section numbers is provided for research purposes.

* Those sections which were amended by the 5-1-79 order are asterisked.

OLD SECTION	NEW SECTION
60091	66016
60093	66020
60095	66024
60102	66028
60103	66032
60104	66036
60105	66040
60106	66048
60107	66052
60108	66056
60109	66060
60110	66064
60111	66068
60112	66072
60113	66076
60114	66080
60115	66084
60116	66088
60117	66092
60118	66096
60119	66100
60120	66104
60121	66108
60122	66120*
60123	66124
60124	66128

60125. 66132
60127. 66136
60127. 66136
60128. 66140
60129. 66144
60130. 66148
60131. 66160
60133. 66164
60135. 66176
60137. 66180
60139. 66184
60141. 66188
60143. 66196
60145. 66200
60147. 66204
60149. 66208
60151. 66212
60153. 66216
60155. 66220
60157. 66224
60159. 66228
60161. 66232
60163. 66236
60165. 66240
60167. 66300
60169. 66305
60171. 66310
60173. 66315
60175. 66320
60177. 66328
60179. 66336

60181. 66344
60185. 66352
60187. 66360
60189. 66370
60191. . . . . 66084*
60193. . . . . 66376*
60195. . . . . 66379*
60197. 66391
60199. 66384
60201. . . . . 66387*
60203. . . . . 66390*
60205. . . . . 66393*
60207. . . . . 66396*
60209. 66399
60211. 66402
60213. 66405
60215. 66408
60217. 66420
60219. 66428
60221. . . . . 66436*
60223. . . . . 66444*
60225. . . . . 66452*
60227. 66460
60229. 66470
60231. 66475
60233. 66480
60235. . . . . 66485*
60237. . . . . 66490*
60239. 66495
60241. 66500
60243. 66505

60245. . . . . 66510*
60247. 66520
60249. 66525
60251. 66530
60253. . . . . 66535*
60255. . . . . 66540*
60257. 66545
60259. 66550
60261. 66555
60263. 66560
60265. 66570
60267. 66595
60269. 66620
60271. 66645
60273. . . . . 66670*
60275. 66672
60277. 66674
60279. 66676
60281. 66680
60283. 66685
60285. 66880
60287. 66683
60289. 66886
60291* 66889*
60293. 66892
60295. 66895
60297. . . . . 66898*

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Chapter 13. Operator Certification

Article 1. Definitions

§ 63750.10. Accredited Academic Institution.

"Accredited academic institution" means an academic institution accredited by the Western Association of Schools and Colleges or an accrediting organization recognized by the Council of Post Secondary Education.

§ 63750.15. Certificate.

"Certificate" means a certificate of competency issued by the Department stating that the operator has met the requirements for a specific operator classification of the certification program.

§ 63750.20. Certified Distribution Operator.

"Certified distribution operator" means a distribution operator who possesses a valid certificate issued pursuant to this chapter.

§ 63750.25. Chief Operator.

"Chief operator" means the person who has overall responsibility for the day-to-day, hands-on, operation of a water treatment facility or the person who has overall responsibility for the day-to-day, hands-on, operation of a distribution system.

§ 63750.30. Comprehensive Operator Training Program.

"Comprehensive Operator Training Program" means an on-the-job training program that allows an operator to gain proficiency in all systems and processes related to a water treatment facility.

§ 63750.35. Contact Hour.

"Contact hour" means not less than 50 minutes of specialized training or a continuing education course.

§ 63750.40. Continuing Education Course.

"Continuing education course" means a presentation that transmits information related to the operation of a treatment facility and/or distribution system.

§ 63750.45. Distribution Operator.

"Distribution operator" means any person who maintains or operates any portion of a distribution system.

§ 63750.50. Distribution System.

"Distribution system" means any combination of pipes, tanks, pumps, etc., which delivers drinking water from a source or treatment facility to the consumer and includes:

(a) Disinfection facilities for which no *Giardia* or virus reduction is required pursuant to § 64654 (a).

(b) The composite of all distribution systems of a public water system.

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§ 63750.55. GED.

"GED" means a general equivalency diploma.

§ 63750.60. Interim Distribution Operator Certificate.

"Interim Distribution Operator Certificate" means a certificate issued by the Department pursuant to section 63810.

§ 63750.65. Operator Experience.

"Operator experience" means the daily performance of activities consisting of the control or oversight of any process or operation at a water treatment facility or in a distribution system that may affect the quality or quantity of water.

§ 63750.70. Shift Operator.

"Shift operator" means a person in direct charge of the operation of a water treatment facility or distribution system for a specified period of the day.

§ 63750.75. Specialized Training.

"Specialized training" means college level courses providing at least 36 contact hours of training each in drinking water or waste water quality, drinking water or waste water treatment, drinking water distribution, or drinking water or waste water facility operation, offered by an accredited academic institution or an organization either accredited by the International Association of Continuing Education Training (IACET) or an authorized provider of IACET, or courses completed and deemed acceptable by the Department prior to January 1, 2001 for the purpose of operator certification.

§ 63750.80. State Water Board.

"State Water Board" means the State Water Resources Control Board.

§ 63750.85. Water Treatment Facility.

"Water treatment facility" means a group or assemblage of structures, equipment, and processes that treat or condition a water supply, affecting the physical, chemical, or bacteriological quality of water distributed or otherwise offered to the public for domestic use by a public water system as defined in Health and Safety Code section 116275. Facilities consisting of only disinfection for which no *Giardia* or virus reduction is required pursuant to section 64654(a) and which are under the control of a certified distribution operator are not included as water treatment facilities.

Article 2. Operator Certification Grades

§ 63765. Water Treatment Facility Staff Certification Requirements.

(a) Except as provided in (c), chief and shift operators shall possess valid operator certificates pursuant to Table 63765–A.

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Table 63765–A — Minimum Certification Requirements for Chief and Shift Operators

Treatment Facility Classification	*Minimum Certification of Chief Operator*	*Minimum Certification of Shift Operator*
T1	T1	T1
T2	T2	T1
T3	T3	T2
T4	T4	T3
T5	T5	T3

(b) Treatment operators not designated by the water supplier as chief or shift operator pursuant to section 64413.5 shall be certified but may hold certificates of any grade.

(c) Until January 1, 2003, a shift and/or chief operator may continue to be employed in that capacity provided that the operator:

(1) Is in compliance with the certification requirements that were in effect on December 31, 2000, and

(2) Has been in continuous employment since December 31, 2000 in a water treatment facility that has not modified its treatment process resulting in a change in classification.

(d) Operators who possessed treatment operator certificates valid as of December 31, 2000 shall be deemed to hold certificates pursuant to Table 63765–B.

Table 63765–B — Certificate Grade Equivalents

Operator Certification Grades December 31, 2000	*Operator Certification Grades January 1, 2001*
I	T1
II	T2
III	T3
IV	T4
V	T5

§ 63770. Distribution System Staff Certification Requirements.

(a) Chief and shift operators shall possess valid operator certificates pursuant to Table 63770–A.

Table 63770–A - Minimum Certification Requirements for Chief and Shift Operators

Distribution System Classification	*Minimum Certification of Chief Operator*	*Minimum Certification of Shift Operator*
D1	D1	D1
D2	D2	D1
D3	D3	D2
D4	D4	D3
D5	D5	D3

(b) Water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:

(1) Install, tap, re-line, disinfect, test and connect water mains and appurtenances.

(2) Shutdown, repair, disinfect and test broken water mains.

(3) Oversee the flushing, cleaning, and pigging of existing water mains.

(4) Pull, reset, rehabilitate, disinfect and test domestic water wells.

(5) Stand-by emergency response duties for after hours distribution system operational emergencies.

(6) Drain, clean, disinfect, and maintain distribution reservoirs.

(c) Water systems shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:

(1) Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.

(2) Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.

(d) Water systems shall utilize either certified distribution operators or treatment operators to make decisions addressing the following operational activities:

(1) Determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.

(2) Investigate water quality problems in the distribution system.

Article 3. Operator Examination Criteria and Applications

§ 63775. Eligibility Criteria for Taking a Water Treatment Operator Examination.

(a) An applicant who has had a certificate revoked, and not reinstated, for any reason other than failure to meet renewal requirements pursuant to section 63840 shall not be eligible for water treatment operator examination at any grade level.

(b) In order to be eligible for taking the T1 operator exam, an applicant shall have a high school diploma or GED. The following experience and/or training may be substituted for a high school diploma or GED:

(1) Successful completion of the "Basic Small Water System Operations" course provided by the Department*,* or

(2) One year as an operator of a facility that required an understanding of chemical feeds, hydraulic systems, and pumps.

(c) In order to be eligible for taking the T2 operator exam, an applicant shall have:

(1) A high school diploma or GED. The following experience and/or training may be substituted for a high school diploma or GED:

(A) Successful completion of the "Basic Small Water System Operations" course provided by the Department, or

(B) One year as an operator of a facility that required an understanding of chemical feeds, hydraulic systems, and pumps.

(2) Successfully completed at least one course of specialized training covering the fundamentals of drinking water treatment.

(d) In order to be eligible for taking the T3 operator exam, an applicant shall have:

(1) A high school diploma or GED.

(2) Successfully completed a total of at least two courses of specialized training that includes at least one course covering the fundamentals of drinking water treatment.

(e) In order to be eligible for taking the T4 operator exam, an applicant shall have:

(1) A valid Grade T3 operator certificate.

(2) Successfully completed at least three courses of specialized training that includes at least two courses in drinking water treatment.

(f) In order to be eligible for taking the T5 operator exam, an applicant shall have:

(1) A valid Grade T4 operator certificate.

(2) Successfully completed at least four courses of specialized training that includes at least two courses in drinking water treatment.

(g) Specialized training courses used to fulfill the requirements of this Section may also be used to fulfill the requirements of section 63780.

§ 63780. Eligibility Criteria for Taking a Distribution Operator Examination.

(a) An applicant who has had a certificate revoked, and not reinstated, for any reason other than failure to meet renewal requirements pursuant to section 63840 shall not be eligible for distribution operator examination at any grade level.

(b) In order to be eligible for taking the D1 operator exam, an applicant shall have a high school diploma or GED. The following experience and/or training may be substituted for a high school diploma or GED:

(1) Successful completion of the "Basic Small Water System Operations" course provided by the Department, or

(2) One year as an operator of a facility that required an understanding of a piping system that included pumps, valves, and storage tanks.

(c) In order to be eligible for taking the D2 operator exam, an applicant shall have:

(1) A high school diploma or GED. The following experience and/or training may be substituted for a high school diploma or GED:

(A) Successful completion of the "Basic Small Water System Operations" course provided by the Department, or

(B) One year as an operator of a facility that required an understanding of a piping system that included pumps, valves, and storage tanks.

(2) Successfully completed a total of at least one course of specialized training in water supply principles.

(d) In order to be eligible for taking the D3 operator exam, an applicant shall have:

(1) A valid Grade D2 or interim Grade D3 or higher operator certificate.

(2) Successfully completed a total of at least two courses of specialized training that includes at least one course in water supply principles.

(e) In order to be eligible for taking the D4 operator exam, an applicant shall have:

(1) A valid Grade D3 or interim Grade D4 or higher operator certificate.

(2) Successfully completed at least three courses of specialized training that includes at least two courses in water supply principles.

(f) In order to be eligible for taking the D5 operator exam, an applicant shall have:

(1) A valid Grade D4 or interim Grade D5 operator certificate.

(2) Successfully completed at least four courses of specialized training that includes at least two courses in water supply principles.

(g) Specialized training courses used to fulfill the requirements of this section may also be used to fulfill the requirements of section 63775.

§ 63785. Examination Application Content and Submittal.

(a) A complete application for examination shall include the following information:

(1) The applicant's full name, social security number (pursuant to the authority found in sections 100275 and 106910 of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), date of birth, certificate number of any operator certificates ever held, mailing address, work telephone number, and home telephone number.

(2) The date of the examination for which the applicant is applying.

(3) The examination fee, pursuant to section 63850.

(4) For T1, T2, D1, and D2 applicants one of the following:

(A) A copy of the applicant's high school diploma or the name and location of the high school and date of graduation; or

(B) A copy of the applicant's GED; or

(C) A certificate of completion for the "Basic Small Water System Operations" course provided by the Department; or

(D) The name, address, and phone number of each employer, the length of time employed, and the nature of the work performed that satisfies the requirements of section 63775(b)(2) or (c)(1)(B) or 63780(b)(2) or (c)(1)(B).

(5) For T3 and D3 applicants, a copy of the applicant's high school diploma, or the name and location of the high school and date of graduation, or a copy of the applicant's GED.

(6) Copies of transcripts or certificates of completion of specialized training courses, as provided by the educational institution, claimed to meet the requirements of section 63775 or 63780.

§ 63790. Filing Deadline and Requirement for Identification at Examination.

(a) For admission to an examination, a completed application shall be postmarked by the final filing date established by the Department.

(b) An examinee shall present their driver's license, photo identification (ID) card issued by the Department of Motor Vehicles, or passport upon entry to the exam.

§ 63795. Examination Application Resubmittals and Reexaminations.

(a) Applications for examination that the Department determines are incomplete pursuant to section 63785 or do not meet the qualification requirements pursuant to section 63775 or 63780 may be amended within 12 months of the original submittal date for reconsideration without payment of an additional examination fee.

(b) Examinees may apply to retake the exam provided they submit an application that includes the following:

(1) Applicant name, social security number (pursuant to the authority found in sections 100275 and 106910 of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), current mailing address, grade for which applying, certificate number if currently certified, date of original application, and date of most recent exam taken.

(2) Payment of the reexamination fee pursuant to section 63850.

Article 4. Operator Certification Criteria and Applications

§ 63800. Eligibility Criteria for Water Treatment Operator Certification.

(a) In order to be eligible for certification as a T1 operator, an applicant shall have passed a Grade T1 operator examination within the three years prior to submitting the application for certification.

(b) In order to be eligible for certification as a T2 operator, an applicant shall have passed a Grade T2 or T3 operator certificate examination within the three years prior to submitting the application for certification.

(c) In order to be eligible for certification as a T3 operator, an applicant shall have passed a Grade T3 operator examination within the three years prior to submitting the application for certification, and shall have completed the following:

(1) At least one year of operator experience working as a certified T2 operator for a T2 facility or higher, or a facility that, prior to January 1, 2001, would have met the criteria for classification as a T2 facility or higher pursuant to section 64413.1.

(2) At least one additional year of operator experience working as a certified treatment operator.

(d) In order to be eligible for certification as a T4 operator, an applicant shall have passed a Grade T4 operator examination within the three years prior to submitting the application for certification, and shall have completed the following:

(1) At least one year of operator experience working as a shift or chief operator, while holding a valid T3 operator certificate, at a T3 facility or higher, or a facility that, prior to January 1, 2001, would have met the criteria for classification as a T3 facility or higher pursuant to section 64413.1, and

(2) At least three additional years of operator experience working as a certified treatment operator.

(e) In order to be eligible for certification as a T5 operator, an applicant shall have passed a Grade T5 operator examination within the three years prior to submitting the application for certification, and shall have completed the following:

(1) At least two years of operator experience working as a shift or chief operator, while holding a valid T4 operator certificate, at a T4 facility or higher, or a facility that, prior to January 1, 2001, would have met the criteria for classification as a T4 facility or higher pursuant to section 64413.1, and

(2) At least three additional years of operator experience working as a certified treatment operator.

(f) A degree earned at an accredited academic institution may be used to fulfill experience requirements in (c)(2), (d)(2), and (e)(2) as follows:

(1) An Associate degree or certificate in water or wastewater technology that includes at least 15 units of physical, chemical, or biological science may be used to fulfill 1 year of operator experience.

(2) A Bachelors degree in engineering or in physical, chemical, or biological sciences may be used to fulfill 1.5 years of operator experience.

(3) A Masters degree in engineering or in physical, chemical, or biological sciences may be used to fulfill 2 years of operator experience.

(g) A certified operator may substitute on a day-for-day basis the experience requirements in (c)(2) with experience gained while working with lead responsibility for water quality related projects or research.

(h) If the applicant has a bachelor of science or a master of science degree, completion of a comprehensive operator training program may be used to fulfill the operator experience requirements in (c)(1) and (d)(1). Completion of the training shall be verified in writing by the chief operator. The comprehensive operator training program shall be at least 6 months in duration and shall cover the following elements:

(1) California Safe Drinking Water Act and regulations promulgated pursuant thereto.

(2) Water treatment calculations.

(3) SCADA operation.

(4) Handling of laboratory chemicals used for drinking water analyses.

(5) Laboratory analyses conducted by operators.

(6) Safety training.

(7) Distribution system operation.

(8) Treatment chemical dosing and monitoring.

(9) Disinfectant dosing and monitoring.

(10) Treatment processes and controls.

(i) Experience gained as a certified waste water treatment plant operator, pursuant to California Water Code sections 13625 through 13633, may be used to fulfill up to two years of the operator experience requirements in (c)(2), (d)(2), and (e)(2). Each two months of experience as a waste water treatment plant operator shall be considered equivalent to one month of water treatment facility operator experience.

§ 63805. Eligibility Criteria for Distribution Operator Certification.

(a) In order to be eligible for certification as a D1 operator, an applicant shall have passed a Grade D1 operator examination within the three years prior to submitting the application for certification.

(b) In order to be eligible for certification as a D2 operator, an applicant shall have passed a Grade D2 operator examination within the three years prior to submitting the application for certification.

(c) In order to be eligible for certification as a D3 operator, an applicant shall have passed a Grade D3 operator examination within the three years prior to submitting the application for certification, and shall have completed the following:

(1) At least one year of operator experience working as a certified D2 operator, interim D3 or higher operator, or temporary D3 operator for a D2 system or higher, or a

system that, prior to January 1, 2001, would have met the criteria for classification as a D2 system or higher pursuant to section 64413.3.

(2) At least one additional year of operator experience working as a distribution operator.

(d) In order to be eligible for certification as a D4 operator, an applicant shall have passed a Grade D4 operator examination within the three years prior to submitting the application for certification, and shall have completed the following:

(1) At least one year of operator experience working as a certified D3, interim D4 or higher operator, or temporary D4 operator for a D3 system or higher, or a system that, prior to January 1, 2001, would have met the criteria for classification as a D3 facility or higher pursuant to section 64413.3, and

(2) At least three additional years of operator experience working as a distribution operator.

(e) In order to be eligible for certification as a D5 operator, an applicant shall have passed a Grade D5 operator examination within the three years prior to submitting the application for certification, and shall have completed the following:

(1) At least two years of operator experience working as a certified D4, interim D5 operator, or temporary D5 operator for a D4 or D5 system, or a system that, prior to January 1, 2001, would have met the criteria for classification as a D4 or D5 system pursuant to section 64413.3, and

(2) At least three additional years of operator experience working as a distribution operator.

(f) A degree earned at an accredited academic institution may be used to fulfill experience requirements in (c)(2), (d)(2), and (e)(2) as follows:

(1) An Associate degree, or certificate, in water or wastewater technology or distribution that includes at least 15 units of physical, chemical, or biological science may be used to fulfill 1 year of operator experience.

(2) A Bachelors degree in engineering or in physical, chemical, or biological sciences may be used to fulfill 1.5 years of operator experience.

(3) A Masters degree in engineering or in physical, chemical, or biological sciences may be used to fulfill 2 years of operator experience.

(g) A certified operator may substitute on a day-for-day basis the experience requirements in (c)(2) with experience gained while working with lead responsibility for water quality or quantity related projects or research.

§ 63810. Interim Certification of Distribution Operators.

(a) A distribution operator in a position responsible for making decisions identified in section 63770 (b), (c), or (d) on December 31, 2000, shall be eligible for interim certification provided that the employing water supplier, as defined in section 64402.20, submits an application which shall include for each employee:

(1) The employee's full name, social security number (pursuant to the authority found in section 100275 and 106910 of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), date of birth,

certificate number of any operator certificates ever held, mailing address, work telephone number, and home telephone number.

(2) The grade at which the operator will be certified.

(3) The certification fee specified in Table 63850–C.

(b) Interim distribution operator certificates shall be effective as of January 1, 2001, and shall expire on January 1, 2004. Such certificates may be renewed only once for an additional 3 years and only if the water system has not received any notice of violation, citation, or order from the Department or EPA since January 1, 2001, unless the public water system can demonstrate to the satisfaction of the Department that the violation was not the result of actions taken or not taken by the operator(s). After January 1, 2007, all interim operator certificates shall be invalid.

(c) In order to renew an interim certificate, a water supplier shall submit a renewal application between July 1, 2003 and September 1, 2003. The renewal application shall include the following:

(1) The operator's name, social security number (pursuant to the authority found in section 100275 and 106910 of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), current mailing address, certificate grade, and certificate number.

(2) Payment of the renewal fee specified in section 63850(e).

(3) Documentation of continuing education contact hours as required by section 63840.

§ 63815. CNAWWA Distribution Operator Certification.

(a) Distribution operators holding a valid California-Nevada section of the American Water Works Association (CNAWWA) distribution operator certificate on December 31, 2000, shall be deemed to have a distribution operator certification valid through December 31, 2001, pursuant to Table 63815–A.

Table 63815–A. CNAWWA — California State Operator Grade Equivalents

CNAWWA Grade	*California State Grade*
1	D2
2	D3
3	D4
4	D5

(b) In order to renew a certification deemed valid pursuant to subsection(a), an operator shall submit a renewal application by September 1, 2001.

(c) The renewal application shall include the following:

(1) The applicant's name, social security number (pursuant to the authority found in sections 100275 and 106910 of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), date of birth, current mailing address, work telephone number, home telephone number, certificate number

of any operator certificates ever held, CNAWWA grade, and a copy of the CNAWWA certificate.

(2) Payment of the appropriate renewal fee specified in section 63850(f).

(d) The initial renewal of a certificate deemed valid pursuant to subsection(a) shall be valid for a two-year period.

§ 63820. Temporary Distribution Operator Certification.

(a) Distribution operators who have received notice of qualification for examination shall be deemed to have a temporary distribution operator certification at the grade for which they have been qualified for examination. All temporary certifications will expire January 1, 2004 and shall not be renewable.

§ 63825. Restricted Operator Certification.

(a) A T1, T2, D1, or D2 restricted operator certificate may be issued without a written examination if the following conditions are met:

(1) The water supplier, as defined in section 64402.20, serves a disadvantaged community as defined in section 63000.25; and

(2) The Department has issued a citation or order to the water supplier for noncompliance with section 64413.5 or 64413.7, or Health and Safety Code section 116555(a)(4), (5), or (b); and

(3) The water supplier submits an application pursuant to section 63830 and pays the application and examination fee specified in section 63850; and

(4) The operator meets the criteria for taking the T1, T2, D1, or D2 exam and passes a performance test administered by the Department that measures his or her knowledge and ability to operate the specific treatment facility and/or distribution system without jeopardizing public health or safety.

(b) The restricted operator certificate shall be valid for three years. The certificate may be renewed if the water supplier continues to serve a disadvantaged community and submits an application pursuant to section 63840 and the operator has met the continuing education requirements as specified in subsection 63840(c).

(c) The restricted operator certificate is not transferable.

§ 63830. Certification Application Content and Submittal.

(a) A complete application for operator certification shall contain the following:

(1) The applicant's full name, social security number (pursuant to the authority found in sections 100275 and 106910 of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), date of birth, certificate number of any operator certificates ever held, mailing address, work telephone number, and home telephone number.

(2) Payment of certification fee pursuant to section 63850.

(3) For any experience being claimed to meet the experience requirements in sections 63800 or 63805, the name, address, and phone number of each employer, the length of time employed, and the nature of the work performed.

(4) Employer verification of the experience being claimed in paragraph (3) with the signature of the chief operator or supervisor of each employer.

(5) Copies of college transcripts if claiming any of the credits pursuant to sections 63800(f), 63800(h) and 63805(f).

(6) Copies of transcripts or certificates of completion of specialized training courses claimed to meet minimum requirements.

§ 63835. Certification Application Resubmittal.

An applicant, whose application for certification failed to meet the requirements of this Article or Article 5, as determined by the Department, may reapply within 12 months of the original submittal date without payment of an additional certification or renewal fee.

Article 5. Certification Renewals, Delinquent Renewals and Fees

§ 63840. Certification Renewals.

(a) All certified operators shall notify the Department within 60 days of any change in address or name during the period of their certification.

(b) Any person wishing to maintain a valid operator certificate shall submit an application for renewal at least 120 days, but no more than 180 days, prior to expiration of the certification. The following items constitute a complete application for renewal:

(1) The applicant's name, social security number (pursuant to the authority found in sections 100275 and 106910 of the Health and Safety Code and as required by sections 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification), current mailing address, grade, and certificate number.

(2) Payment of the renewal fee specified in Section 63850(c), (d), (e), or (f).

(3) A list of successfully completed continuing education courses as required by subsection(c). The following information shall be provided for each course:

(A) Title,

(B) name of the instructor,

(C) location,

(D) date(s), and

(E) number of contact hours.

(c) To be eligible for certificate renewal, certified operators possessing certificates that expire after December 31, 2003, shall have completed continuing education contact hours since the previous renewal or issuance of the certificate pursuant to Table 63840–A. No more than 25% of the contact hours shall be courses in operator safety.

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Table 63840–A. Required Continuing Education Contact Hours for Certificate Renewal

Water Treatment Operators	*Contact Hours Required*
Grade T1	12
Grade T2	16
Grade T3	24
Grade T4	36
Grade T5	36
Distribution Operators	
Grade D1	12
Grade D2	16
Grade D3	24
Grade D4	36
Grade D5	36

(1) Operators possessing both distribution and treatment certificates may apply continuing education credits to both certificates.

(2) Specialized training that is used to satisfy the requirements of section 63775 or 63780 may be used to satisfy the continuing education requirements of Table 63840–A if obtained since the previous renewal or issuance of the certificate.

(d) Except as provided in section 63815, each certificate renewed pursuant to (b) shall be valid for a period of three years.

§ 63845. Reinstatement.

(a) A certificate that has been revoked only for lack of payment may be reinstated within 1 year if all fees and penalties specified in section 63850 are paid and the renewal application is complete.

(b) A certificate that has been revoked for failure to complete the continuing education contact hours required in Table 63840–A may be reinstated within six months if all requirements specified in Table 63840–A are met and penalties specified in section 63850 are paid and the renewal application is complete. Contact hours obtained for reinstatement shall not be used to satisfy the requirements of the next renewal period.

(c) A certificate that has been revoked for more than one year shall not be renewed.

(d) The expiration date of a certificate that has been renewed pursuant to this section shall remain the same as if the previous certificate had been renewed prior to the expiration date.

§ 63850. Fees.

(a) All fees submitted to the State Water Board pursuant to this section are nonrefundable.

(b) Application fees for an examination are set forth below in Table 63850–A:

Table 63850–A. Operator Examination Fee Schedule

Grade	*Examination Fee*	*Reexamination Fee*
D1 or T1	$50	$30
D2 or T2	$65	$45
D3 or T3	$100	$70
D4 or T4	$130	$95
D5 or T5	$155	$120

(c) Except as provided in subdivision (d), certification fees are set forth below in Table 63850–B:

Table 63850-B. Fee Schedule for Operators With a Single Certificate

Grade	*Certification Fee*	*Triennial Renewal Fee*
D1 or T1	$70	$70
D2 or T2	$80	$80
D3 or T3	$120	$120
D4 or T4	$140	$140
D5 or T5	$140	$140

(d) Notwithstanding subdivision (c), the certification fees for those operators who are applying for, or hold, two or more valid, unexpired certifications issued by the State Water Board as a water treatment operator, distribution operator, or wastewater treatment plant operator are set forth below in Table 63850-C:

Table 63850-C. Fee Schedule for Operators With Multiple Certificates

Grade	*Certification Fee per Certificate*	*Triennial Renewal Fee per Certificate*
D1 or T1	$55	$55
D2 or T2	$60	$60
D3 or T3	$90	$90
D4 or T4	$105	$105
D5 or T5	$105	$105

(e) A penalty fee of $50 shall be paid for renewals submitted or resubmitted after the renewal due date but at least 45 days prior to the expiration date. A penalty fee of $100 shall be paid for renewals submitted or resubmitted less than 45 days prior to the expiration date but within 1 year after the expiration date.

(f) A certificate replacement fee of $25 shall be paid by any certificate holder requesting to have a lost, stolen, or destroyed certificate replaced.

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Chapter 14. Water Permits

Article 1. Applications

§ 64001. Water Permit Application.

A public water system shall submit an application for a permit or amended permit pursuant to section 116525 or section 116550, Health and Safety Code, respectively. For proposed water system improvements, new water systems, or a "project" as defined in section 15378, Title 14, California Code of Regulations where environmental documentation is required, a copy of such documentation shall be included in the application.

Article 3. State Small Water Systems

§ 64211. Permit Requirement.

(a) No person shall operate a state small water system unless a permit to operate the system has been issued by the local health officer.

(b) A state small water system shall submit a technical report to the local health officer as part of the permit application. The report shall describe the proposed or existing system as follows: service area, distribution system including storage and pumping facilities, the water source including source capacity, water quality, and any water treatment facilities. The report shall identify the owner of the system and the party responsible for day to day operation of the system. The report shall include a plan for notification of those served by the system under emergency conditions. The report shall describe the operating plan for the system and shall specify how the responsible party will respond to failure of major system components.

(c) A change in ownership of a state small water system shall require the submission of a new application.

(d) A state small water system shall provide the following notice to the consumers served by the state small water system: "The domestic water supply for this area is provided by a state small water system. State regulatory requirements for operation of a state small water system are less extensive than requirements for larger public water systems. If you have questions concerning your water supply, you should contact [insert (1) name of water system, (2) name of responsible person, and (3) telephone number] or your local health department." This notice shall be by direct delivery on an annual basis or by continuous posting at a central location within the area served by the state small water system.

§ 64212. Bacteriological Quality Monitoring.

(a) A water supplier operating a state small water system shall collect a minimum of one routine sample from the distribution system at least once every three months. The sample shall be analyzed for the presence of total coliform bacteria by a laboratory certified by the State Board for bacteriological analyses pursuant to Article 3, commencing with section 100825, of Chapter 4 of Part 1 of Division 101, Health and

Safety Code. The results of the analyses shall be reported to the local health officer no later than the 10th day of the month following receipt of the results by the state small water system.

(b) If any routine sample is total coliform-positive, the water supplier shall collect a repeat sample from the same location within 48 hours of being notified of the positive result. If the repeat sample is also total coliform-positive, the sample shall also be analyzed for the presence of fecal coliforms or *Escherichia coli* (*E. coli*). The water supplier shall notify the local health officer within 48 hours from the time the results are received and shall take corrective actions as directed by the local health officer to eliminate the cause of the positive samples.

(c) A local health office may require a state small water system to sample the distribution system each month, in lieu of the requirements of subsection (a), if the system has bacteriological contamination problems indicated by more than one total-coliform positive sample during the most recent 24 months of operation. The monthly sample shall be analyzed for the presence of total coliform bacteria by a laboratory certified by the State Board for bacteriological analyses pursuant to Article 3, commencing with section 100825, of Chapter 4 of Part 1 of Division 101, Health and Safety Code. The results of the analyses shall be reported to the local health officer no later than the 10th day of the month following receipt of the results by the state small water system.

§ 64213. Chemical Quality Monitoring.

(a) A water supplier operating a state small water system shall sample each source of supply prior to any treatment at least once. The sample shall be analyzed by a laboratory, certified by the State Board pursuant to Article 3, commencing with section 100825, of Chapter 4 of Part 1 of Division 101, Health and Safety Code, for fluoride, iron, manganese, chlorides, total dissolved solids, and the inorganic chemicals listed in table 64431–A, section 64431.

(b) A groundwater source that has been designated as vulnerable by the local health officer pursuant to criteria set forth in sections 64445(d)(1) and (2) shall be sampled by the water supplier operating the state small water system at least once prior to any treatment and analyzed for volatile organic compounds in accordance with approved methods specified in section 64415. The analysis shall be performed by a laboratory certified by the State Board to perform analyses for organic chemicals pursuant to Article 3, commencing with section 100825, of Chapter 4 of Part 1 of Division 101, Health and Safety Code.

(c) The results of the laboratory analyses shall be submitted to the local health officer by the state small water system no later than the 10th day of the month following receipt of the results by the state small water system. A copy of the results of the analyses and a comparison of the results with the maximum contaminant levels for those contaminants listed in table 64431–A, section 64431 and table 64444–A, section 64444, shall be distributed by the state small water system to each regular user of the water system within 90 days of receiving the results. A copy of the distribution notice shall be provided to the local health officer.

(d) A water supplier operating a state small water system shall comply with any corrective actions ordered by the local health officer for any chemical contaminant which exceeds the maximum contaminant level.

§ 64214. Service Connection Limitation.

No state small water system shall add additional service connections to the system such that the total number of service connections served by the system exceeds 14 before the water system has applied for and received a permit to operate as a public water system from the State Board.

§ 64215. Water Supply Requirements.

Prior to receiving permit approval, a state small water system which was not in existence on November 12, 1991 shall demonstrate to the local health officer that sufficient water is available from the water system's sources and distribution storage facilities to supply a minimum of three gallons per minute for at least 24 hours for each service connection served by the system.

§ 64216. Mutual Associations Prohibited.

No state small water system which was not in existence on November 12, 1991 shall be issued a permit to operate if the water supplier is an unincorporated association organized under Title 3 (commencing with Section 20000) of Division 3 of the Corporations Code.

§ 64217. Surface Water Treatment Requirement.

All state small water systems using surface water as a source of supply shall provide continuous disinfection treatment of the water prior to entry to the distribution system.

Article 4. Local Primacy Delegation

§ 64251. Definitions.

(a) For the purpose of this Article the following definitions shall apply:

(1) "Small Water System" means a community water system except those serving 200 or more service connections, or any noncommunity or nontransient noncommunity water system.

(2) "Primacy Delegation Agreement" means the document, issued by the State Board and signed by the local health officer, delegating primacy to a local health officer.

(3) "Routine Inspection" means an on-site review of a small water system which includes, but is not limited to, inspections of system operations, operation and maintenance records, system facilities and equipment.

(4) "Sanitary Survey" means an on-site review of a small water system which includes, in addition to the elements of a routine inspection, an evaluation of the watershed for surface water sources and vulnerability assessments for groundwater sources.

§ 64252. Primacy Delegation Application.

(a) The primacy delegation application submitted by a local health officer pursuant to section 116330 of the Health and Safety Code shall describe how the primacy

requirements of this article will be complied with and shall contain the following information relating to the small water system program to be delegated:

(1) The number of staff persons, percentage of time and personnel classification of each staff person, and a description of the program responsibilities of each person involved in the small water system program;

(2) A proposed program budget projecting both revenues and expenditures for the first year of the program. The expenditures categories shall include personnel, general expense (i.e., rent, supplies and communications), travel, equipment, data management, any other specific services to be provided (e.g., laboratory), administrative overhead and other indirect charges. The anticipated revenues shall specify all planned sources of revenues to be used for support of the small water system program;

(3) A description of engineering and legal resources to be used in conducting the program;

(4) A description of the electronic data management system to be used to comply with the requirements of section 64256(e) and the compatibility of the proposed system with the data management system used by the State Board;

(5) A description of the current status of compliance with Division 104, Part 1, Chapters 4 and 5; Division 104, Part 12, Chapters 4 and 5 of the Health and Safety Code and California Code of Regulations, Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of the small water systems within the county. This description shall include the following:

(A) All violations of drinking water monitoring or reporting requirements by any of the systems during the 12 months preceding the submission of the application for primacy;

(B) All violations of standards of California Code of Regulations, Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 during the 12 months preceding the submission of the application for primacy; and

(C) All enforcement actions against small water systems taken by the county during the 12 months preceding the submission of the application for primacy.

(6) A current inventory list of the small water systems within the county. For each small water system the inventory list shall specify the system name, water system identification number, mailing address, type of system (community, nontransient noncommunity or noncommunity), name and address and phone number of the responsible party, type of ownership, type of water source, type of treatment if any, dates of operation for seasonally operated systems, and either:

(A) For a community water system, the number of service connections; or

(B) For a noncommunity or nontransient noncommunity water system, the average monthly population served.

(7) Demonstration that the local primacy agency will be able to immediately undertake the activities specified as local primacy program requirements in section 64253 at the time of delegation; and

(8) An annual workplan, as required pursuant to section 64260, which, at the discretion of the State Board, may be submitted separately following the State Board's review of the remainder of the application.

(b) The application shall be signed by the local health officer or by a local official with the authority to submit the application on behalf of the county.

§ 64253. Local Primacy Agency Minimum Program Requirements.

Each local primacy agency shall conduct a regulatory program for small water systems within its jurisdiction that complies with all of the requirements set forth in sections 64254, 64255, 64256, 64257, and 64258.

§ 64254. Permits.

(a) A local primacy agency shall issue and maintain a valid drinking water permit for all small water systems within its jurisdiction in accordance with sections 116525 through 116550 of the Health and Safety Code. The permit shall include terms and conditions, including compliance schedules, that are necessary to assure that water served will comply with Division 104, Part 1, Chapters 4 and 5; Division 104, Part 12, Chapters 4 and 5 of the Health and Safety Code, and Title 22, Division 4, Chapters 15, 15.5, 16, 17, and 17.5, and Title 17, Division 1, Chapter 5, Group 4 of the California Code of Regulations.

(b) All existing permits shall be reviewed and updated as necessary at least every ten years.

(c) A copy of all permit applications for proposed new community water systems under the jurisdiction of the local primacy agency that are designed to serve 200 or more service connections shall be submitted to the State Board. The local primacy agency shall not issue a permit for these systems unless the State Board concurs that the systems are capable of complying with Division 104, Part 1, Chapters 4 and 5; Division 104, Part 12, Chapters 4 and 5 of the Health and Safety Code, and Title 22, Division 4, Chapters 15, 15.5, 16, 17, and 17.5, and Title 17, Division 1, Chapter 5, Group 4 of the California Code of Regulations.

§ 64255. Surveillance.

(a) A local primacy agency shall establish and maintain an inventory of all small water systems under its jurisdiction. The inventory shall be updated at least annually and shall include the following information for each system:

(1) All of the information specified in section 64252(a)(6);

(2) The name and telephone number of the operator of any treatment facilities utilized by the system; and

(3) A copy of the current emergency notification plan required pursuant to section 116460 of the Health and Safety Code.

(b) A local primacy agency shall conduct a routine inspection of each small water system within its jurisdiction as follows:

(1) At least once every two years on each small water system utilizing a surface water source as defined in section 64651.10;

(2) At least once every two years on each small water system utilizing groundwater that is treated in order to meet drinking water standards; and

(3) At least once every five years on each small water system utilizing groundwater without treatment.

(c) A local primacy agency shall conduct a sanitary survey of each small water system within its jurisdiction at least once every five years. A sanitary survey may be conducted in lieu of any routine inspection.

(d) A local primacy agency shall identify any deficiencies found during the routine inspection or sanitary survey and shall submit a follow-up notice to the small water system describing such deficiencies and prescribing a time schedule for corrective action. The notice shall be sent to the small water system within 60 days of the routine inspection or sanitary survey.

(e) A local primacy agency shall complete a routine inspection or sanitary survey report for each routine inspection or sanitary survey conducted within 90 days of completion of the sanitary survey or routine inspection.

(f) A local primacy agency shall determine which small water systems under its jurisdiction utilize surface water or groundwater under the direct influence of surface water and are subject to surface water treatment requirements as specified in section 64650.

§ 64256. Sampling and Monitoring.

(a) A local primacy agency shall notify each small water system under its jurisdiction in writing of the monitoring requirements for that system pursuant to Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of the California Code of Regulations. The notice shall identify the specific contaminants to be monitored, the type of laboratory analyses required for each contaminant, the frequency of sampling, and any other sampling and reporting requirements applicable to that system.

(b) A local primacy agency shall ensure that each small water system under its jurisdiction complies with the sample siting plan requirements of section 64422.

(c) A local primacy agency shall establish a tracking system to assure that all required sampling and laboratory analyses are completed and reported by the small water systems pursuant to Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of the California Code of Regulations. The tracking system shall include the date the sample was collected, the type or purpose of the sample, and the laboratory result.

(d) A local primacy agency shall maintain an ongoing record of the status of compliance with monitoring and reporting requirements of California Code of Regulations, Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of each small water system.

(e) A local primacy agency shall establish a system to assure that the water quality monitoring data submitted by the small water systems is routinely reviewed for compliance with the requirements of Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of the California Code of Regulations. The monitoring reports shall be reviewed each month for each small water system and the data entered into the data management system at least monthly.

§ 64257. Reporting.

(a) The following reports shall be submitted monthly in an electronic data format to the State Board no later than the last day of the month following the period being reported:

(1) A report listing all small water systems that failed during the previous month to comply with drinking water monitoring and reporting regulations of Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of the California Code of Regulations; and

(2) A compliance report containing the following information for each small water system under the jurisdiction of the local primacy agency that is in violation of Title 22, Division 4, Chapters 15, 15.5, 17, and 17.5 of the California Code of Regulations:

(A) The name and water system identification number of the system;

(B) A description of the type of violation and the standard violated; and

(C) A description of any enforcement action taken by the local primacy agency with respect to the violation.

(b) The following reports shall be submitted quarterly in an electronic data format to the State Board no later than the last day of the quarter following the quarter being reported:

(1) A list of domestic water supply permits for small water systems that have been issued, amended, or renewed during the reporting period. The list shall include the name and the identification number of the water system; and

(2) A list of the small water systems for which a routine inspection or sanitary survey was conducted during the reporting period. The list shall indicate the name and identification number of the small water system and the type of routine inspection or sanitary survey performed.

(c) An updated inventory of small water systems under the jurisdiction of the local primacy agency shall be submitted annually in an electronic format to the State Board no later than August 15 of each year.

§ 64258. Enforcement.

(a) A local primacy agency shall take enforcement actions as necessary to assure that all small water systems under the jurisdiction of the local primacy agency are in compliance with Division 104, Part 1, Chapters 4 and 5; Division 104, Part 12, Chapters 4 and 5 of the Health and Safety Code, and California Code of Regulations, Title 17, Division 1, Chapter 5, Group 4 and Title 22, Division 4, Chapters 14, 15, 15.5, 16, 17, and 17.5.

(b) A local primacy agency shall notify each small water system under their jurisdiction of any new state or federal drinking water requirements applicable to those systems.

§ 64259. Program Management.

(a) A local primacy agency shall establish and maintain a time accounting system for determining the amount of reimbursement to be billed to each small water system pursuant to section 116595 of the Health and Safety Code. The hourly cost rate of the local primacy agency shall be determined using the criteria set forth in section 116590(b) of the Health and Safety Code.

(b) A local primacy agency shall establish and maintain an individual file for each small water system under its jurisdiction. The following information shall be maintained in the file:

(1) The current operating permit and all technical reports supporting it;

(2) Permit applications, permit technical reports, permits, and amended permits for a minimum of 10 years;

(3) The most recent plans, specifications, and other information submitted by the water system pertaining to sources of supply, treatment works, storage facilities, and distribution system, including water quality monitoring plans and total coliform siting plans;

(4) Inspection and sanitary survey reports for a minimum of 10 years;

(5) Copies of bacteriological water quality analyses for a minimum of 5 years; copies of all other water quality analyses for a minimum of 10 years;

(6) Correspondence, memoranda, and other written records pertaining to the system issued or written within the past three years; and

(7) Copies of all compliance orders, citations, court actions, and other enforcement documentation.

§ 64260. Workplans.

(a) Each local primacy agency shall develop and submit to the State Board a proposed annual program workplan for the upcoming fiscal year. The local primacy agency shall submit the proposed annual workplan to the State Board no later than May 1 of each year for the fiscal year commencing July 1 of that year; except for the initial proposed annual workplan submitted in accordance with section 64252.

(b) The workplan developed pursuant to subsection (a) shall describe the activities proposed to be performed by the local primacy agency during the forthcoming fiscal year and shall include:

(1) The anticipated number of new small water system permits to be issued and the proposed number of existing community or noncommunity permits (designated by category) to be updated or amended.

(2) A description of how the small water system inventory specified in section 64255 (a) will be maintained.

(3) A description of how the surveillance activities specified in section 64255 (b) through (f) will be conducted and the priorities to be used in determining the activities to be performed.

(4) The number of planned routine inspections and sanitary surveys to be performed for each category of small water systems (community, noncommunity and nontransient noncommunity).

(5) A listing of small water systems proposed for enforcement action and the priorities to be used in determining these systems.

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Chapter 14.5 Fees

Article 1. Public Water System Annual Fees

§ 64300. Definitions.

(a) "Disadvantaged community" means a community with a median annual household income of less than eighty percent (80%) of the statewide median annual household income.

(b) "Wholesaler" means a public water system that sells water to other public water systems. A public water system that has 1,000 or more service connections or that sells water only on a short-term or intermittent basis is not a wholesaler.

§ 64305. Schedule for Annual Fees.

(a) Each public water system shall pay an annual fee to the State Board in the amount provided in Table 64305-A.

(b) Except as provided in subsection (c), for each community water system, the number of service connections is equal to the number of service connections that the community water system reported on the electronic Annual Report (eAR), or other reporting tool as directed by the State Board, that was filed with the State Board for the calendar year immediately preceding the year in which the invoice is submitted to the community water system. If the community water system did not report the number of service connections to the State Board in the previous calendar year, the State Board will calculate the number of service connections.

(c) For each community water system that serves group quarters as defined in Section 64300, the fee will be based on the residential population as determined in the eAR or other reporting tools as directed by the State Board. The fee will be calculated based on residential population pursuant to Table 64305-A.

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TABLE 64305-A —Public Water Systems Annual Fee

Water System Type	Fee
Community Water System	
100 or fewer service connections	$677 or $11.32 per service connection, whichever is greater
100 or fewer service connections (disadvantaged community)	$339
101 to 1,000 service connections	$11.32 per service connection
101 to 1,000 service connections (disadvantaged community)	$339 plus $3.76 per each service connection greater than 100
1,001 to 5,000 service connections	$11.32 per each of first 1,000 service connections plus $6.62 per each service connection greater than 1,000
1,001 to 5,000 service connections (disadvantaged community)	$339 plus $3.76 per each service connection greater than 100
5,001 to 15,000 service connections	$11.32 per each of first 1,000 service connections plus $6.62 per each service connection greater than 1,000 but less than 5,001 plus $3.76 per each service connection greater than 5,000
5,001 to 15,000 service connections (disadvantaged community)	$339 plus $3.76 per each service connection greater than 100
15,001 or more service connections	$11.32 per each of first 1,000 service connections plus $6.62 per each service connection greater than 1,000 but less than 5,001 plus $3.76 per each service connection greater than 5,000 but less than 15,001 plus $2.56 per each service connection greater than 15,000
15,001 or more service connections (disadvantaged community)	$339 plus $3.76 per each service connection greater than 100 but less than 15,001 plus $2.56 per each service connection greater than 15,000
Community Water System - Group Quarters	
3,300 or fewer persons served	$677 or $3.43 per person served, whichever is greater
3,301 to 16,500 persons served	$3.43 per each of first 3,300 persons served plus $2.01 per each person served greater than 3,300

16,501 to 49,500 persons served	$3.43 per each of first 3,300 persons served plus $2.01 per each person served greater than 3,300 but less than 16,501 plus $1.14 per each person served greater than 16,500
49, 501 or more persons served	$3.43 per each of first 3,300 persons served plus $2.01 per each person served greater than 3,300 but less than 16,501 plus $1.14 per each person served greater than 16,500 but less than 49,501 plus $0.78 per each person served greater than 49,500
Nontransient Noncommunity Water System	$3.76 per customer served, but not less than $862[1]
Transient Noncommunity Water System	$1,509
Wholesaler	$11,316 plus $2.58 per each MG[2]

[1] Customer as defined in section 64400.30 of Article 1, Chapter 15.

[2] "Million Gallons" (MG) means the annual average, rounded to the nearest million, as reported to the State Board by the wholesaler in the eAR or other reporting tool as directed by the State Board, for the four years immediately preceding the year in which the invoice is submitted to the public water system, of the total gallons of water that the wholesaler produced from surface water and from groundwater and gallons of finished water that the wholesaler purchased or received from another public water system.

§ 64310. Reduction of Fees for Public Water Systems Serving Disadvantaged Community.

(a) A public water system must pay the full amount of the annual fee unless it requests and receives from the State Board a determination that its annual fees are reduced because it is a community water system that serves a disadvantaged community in which case the fee to be paid is the amount for a disadvantaged community as shown in Table 64305-A.

(b) To qualify for the reduction provided for in subsection (a), a public water system must certify, and provide documentation to the State Board upon request, that it serves a disadvantaged community.

§ 64315. Payment of Fees

(a) Each public water system shall pay to the State Board the fee required by this article. Payment is due upon receipt of the invoice, except that this date may be extended by the State Board for good cause, which shall be determined at the State Board's sole discretion.

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Chapter 15. Domestic Water Quality and Monitoring Regulations

Article 1. Definitions

§ 64400. Acute Risk.

"Acute risk" means the potential for a contaminant or disinfectant residual to cause acute health effects, i.e., death, damage or illness, as a result of a single period of exposure of a duration measured in seconds, minutes, hours, or days.

§ 64400.02. Approved Surface Water.

"Approved surface water" has the same meaning as defined in Section 64651.10.

§ 64400.03. Clean Compliance History.

"Clean compliance history" means a record of no bacteriological monitoring violations under sections 64423, 64424, and 64425, no MCL violations under section 64426.1, no coliform treatment technique violations under section 64426.6, and no coliform treatment technique trigger exceedances under section 64426.7.

§ 64400.05. Combined Distribution System.

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

§ 64400.10. Community Water System.

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

§ 64400.20. Compliance Cycle.

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

§ 64400.25. Compliance Period.

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

§ 64400.28. Confluent Growth.

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

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§ 64400.29. Consecutive System.

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

§ 64400.30. Customer.

"Customer" means a service connection to which water is delivered by a community water system or a person that receives water from a nontransient-noncommunity water system for more than six months of the year.

§ 64400.32. Detected.

"Detected" means at or above the detection limit for purposes of reporting (DLR).

§ 64400.34. Detection Limit for Purposes of Reporting (DLR).

"Detection limit for purposes of reporting (DLR)" means the designated minimum level at or above which any analytical finding of a contaminant in drinking water resulting from monitoring required under this chapter shall be reported to the State Board.

§ 64400.36. Dual Sample Set.

"Dual sample set" means a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5.

§ 64400.38. Enhanced Coagulation.

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

§ 64400.40. Enhanced Softening.

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

§ 64400.41. Finished Water.

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

§ 64400.42. Fluoridation.

"Fluoridation" means the addition of fluoride to drinking water to achieve an optimal level, pursuant to Section 64433.2, that protects and maintains dental health.

§ 64400.45. GAC10.

"GAC10" means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of once every 180 days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with the TTHM and HAA5 MCLs monitored pursuant to section 64534.2(d) shall be once every 120 days.

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§ 64400.46. GAC20.

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

§ 64400.47. Groundwater Under the Direct Influence of Surface Water or GWUDI.

"Groundwater under the direct influence of surface water" or "GWUDI" has the same meaning as defined in Section 64651.50.

§ 64400.49. Haloacetic Acids (Five) or HAA5.

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

§ 64400.50. Initial Compliance Period.

"Initial compliance period" means the first full three-year compliance period which began January 1, 1993, for existing systems. For new systems, the "initial compliance period" means the period in which the State Board grants the permit.

§ 64400.60. Initial Finding.

"Initial finding" means the first laboratory result from a water source showing the presence of an organic chemical listed in Section 64444, Table 64444–A.

§ 64400.62. IOC.

"IOC" means inorganic chemical.

§ 64400.63. Level 1 Assessment.

"Level 1 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment.

§ 64400.64. Level 2 Assessment.

"Level 2 assessment" means an evaluation, that provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices, to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment.

§ 64400.66. Locational Running Annual Average or LRAA.

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

§ 64400.67. Maximum Residual Disinfectant Level or MRDL.

"Maximum residual disinfectant level" or "MRDL" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

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§ 64400.70. MCL.

"MCL" means maximum contaminant level.

§ 64400.80. Nontransient-noncommunity Water System.

"Nontransient-noncommunity water system" means a public water system that is not a community water system and that regularly serves at least the same 25 persons over 6 months per year.

§ 64400.90. Operational Evaluation Levels or OEL.

"Operational evaluation level" or "OEL" means the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average; or the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average.

§ 64400.93. Possible Contaminating Activity (PCA).

"Possible contaminating activity (PCA)" means a human activity that is an actual or potential origin of contamination for a drinking water source and includes sources of both microbiological and chemical contaminants that could have adverse effects upon human health.

§ 64400.95. Protected Water Source.

"Protected water source" means an aquifer that provides physical exclusion of microbial contamination.

§ 64401. Repeat Compliance Period.

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

§ 64401.10. Repeat Sample.

"Repeat sample" means a required sample collected following a total coliform-positive sample.

§ 64401.20. Replacement Sample.

"Replacement sample" means a sample collected to replace an invalidated sample.

§ 64401.30. Routine Sample.

"Routine sample" means a bacteriological sample the water supplier is required to collect on a regular basis, or one which the supplier is required to collect for a system not in compliance with Sections 64650 through 64666 when treated water turbidity exceeds 1 nephelometric turbidity unit (NTU), pursuant to section 64423(b).

§ 64401.35. Sanitary Defect.

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

§ 64401.40. Sanitary Survey.

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

§ 64401.45. Seasonal System.

"Seasonal system" means a nontransient-noncommunity water system or transient-noncommunity water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

§ 64401.50. Significant Rise in Bacterial Count.

"Significant rise in bacterial count" means an increase in coliform bacteria, as determined in Section 64426, when associated with a suspected waterborne illness or disruption of physical works or operating procedures.

§ 64401.55. SOC.

"SOC" means synthetic organic chemical.

§ 64401.57. Source Water Assessment.

"Source water assessment" means an evaluation of a drinking water source that includes delineation of the boundaries of the source area, identification of PCAs within the delineated area, a determination of the PCAs to which the source is most vulnerable, and a summary of the vulnerability of the source to contamination.

§ 64401.60. Standby Source.

"Standby source" means a source which is used only for emergency purposes pursuant to Section 64414.

§ 64401.65. SUVA.

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

§ 64401.70. System with a Single Service Connection.

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

§ 64401.71. Tier 1 Public Notice.

"Tier 1 public notice" means a public notice issued in response to the events listed in subsection 64463.1(a) and in the manner specified in subsections 64463.1(b) and (c).

§ 64401.72. Tier 2 Public Notice.

"Tier 2 public notice" means a public notice issued in response to the events listed in section 64463.4(a) and in the manner specified in subsections 64463.4(b) and (c).

§ 64401.73. Tier 3 Public Notice.

"Tier 3 public notice" means a public notice issued in response to the events listed in section 64463.7(a) and in the manner specified in subsections 64463.7(b), and (c) or (d).

§ 64401.75. Too Numerous to Count.

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

§ 64401.80. Total Coliform-positive.

"Total coliform-positive" means a sample result in which the presence of total coliforms has been demonstrated.

§ 64401.82. Total Organic Carbon or TOC.

"Total organic carbon" or "TOC" means total organic carbon reported in units of milligrams per liter (mg/L), as measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

§ 64401.85. Transient-noncommunity Water System.

"Transient-noncommunity water system" means a public water system that is not a community water system or a nontransient-noncommunity water system.

§ 64401.90. Treatment.

"Treatment" means physical, biological, or chemical processes, including blending, designed to affect water quality parameters to render the water acceptable for domestic use.

§ 64401.92. Total Trihalomethanes or TTHM.

"Total Trihalomethanes" or "TTHM" means the sum of the concentrations in milligrams per liter (mg/L) of the trihalomethane compounds (bromodichloromethane, bromoform, chloroform, and dibromochloromethane), rounded to two significant figures after addition.

§ 64401.95. VOC.

"VOC" means volatile organic chemical.

§ 64402. Vulnerable System.

"Vulnerable system" means a water system which has any water source which in the judgment of the State Board, has a risk of containing an organic contaminant, based on an assessment as set forth in Section 64445(d)(1).

§ 64402.10. Water Source.

"Water source" means an individual groundwater source or an individual surface water intake. Sources which have not been designated as standby sources shall be deemed to be water sources.

§ 64402.20. Water Supplier.

"Water supplier", "person operating a public water system" or "supplier of water" means any person who owns or operates a public water system. These terms will be used interchangeably in this chapter.

(a) "Wholesale water supplier," or "wholesaler" means any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

(b) "Retail water supplier," or "retailer" means

(1) Any person who owns or operates any distribution facilities and any related collection, treatment, or storage facilities under the control of the operator of the public water system which are used primarily in connection with the public water system; or

(2) Any person who owns or operates any collection or pretreatment storage facilities not under the control of the operator of the public water system which are used primarily in connection with the public water system.

§ 64402.30. Wholesale System.

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

Article 2. General Requirements

§ 64412. Determination of Persons Served.

(a) The number of persons served by a community water system shall be determined by the water system using one of the following methods:

(1) Utilizing the most recent United States census data, or more recent special census data certified by the California Department of Finance, for the service area served by the water system;

(2) Multiplying the number of service connections served by the water system by 3.3 to determine the total population served;

(3) Determining the total number of dwelling units or efficiency dwelling units as defined in the Uniform Building Code (Title 24, California Code of Regulations), the number of mobile home park spaces and the number of individual business, commercial, industrial and institutional billing units served by the water system and multiplying this total by 2.8 to arrive at the total population served by the system.

(b) Each community water system shall report to the State Board annually the number of persons and the number of service connections served by the system using the procedures set forth in subsection (a).

§ 64413.1. Classification of Water Treatment Facilities.

(a) Each water treatment facility shall be classified pursuant to Table 64413.1–A based on the calculation of total points for the facility using the factors specified in subsection (b).

Table 64413.1–A. Water Treatment Facility Class Designations

Total Points	*Class*
Less than 20	T1
20 through 39	T2
40 through 59	T3
60 through 79	T4
80 or more	T5

(b) The calculation of total points for each water treatment facility shall be the sum of the points derived in each of paragraphs (1) through (13). If a treatment facility treats

more than one source, the source with the highest average concentration of each contaminant shall be used to determine the point value in paragraphs (2) through (5).

(1) For water source, the points are determined pursuant to Table 64413.1–B.

Table 64413.1–B. Points for Source Water Used by the Facility

Type of source water used by the facility	*Points*
Groundwater and/or purchased treated water meeting primary and secondary drinking water standards, as defined in § 116275 of the Health and Safety Code	2
Water that includes any surface water or groundwater under the direct influence of surface water	5

(2) For influent microbiological water quality, points shall be determined by using the median of all total coliform analyses completed in the previous 24 months pursuant to Table 64413.1–C:

Table 64413.1–C. Influent Water Microbiological Quality Points

Median Coliform Density Most Probable Number Index (MPN)	*Points*
less than 1 per 100 mL	0
1 through 100 per 100 mL	2
greater than 100 through 1,000 per 100 mL	4
greater than 1,000 through 10,000 per 100 mL	6
greater than 10,000 per 100 mL	8

(3) For facilities treating surface water or groundwater under the direct influence of surface water, points for influent water turbidity shall be determined pursuant to Table 64413.1–D on the basis of the previous 24 months of data, except that if turbidity data is missing for one or more of the months, the points given for turbidity shall be 5. The maximum influent turbidity sustained for at least one hour according to an on-line turbidimeter shall be used unless such data is not available, in which case, the maximum influent turbidity identified by grab sample shall be used. For facilities that have not been in operation for 24 months, the available data shall be used. For facilities whose permit specifies measures to ensure that influent turbidity will not exceed a specified level, the points corresponding to that level shall be assigned.

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Table 64413.1–D. Influent Water Turbidity Points

Maximum Influent Turbidity Level Nephelometric Turbidity Units (NTU)	*Points*
Less than 15	0
15 through 100	2
Greater than 100	5

(4) The points for influent water perchlorate, nitrate, or nitrite levels shall be determined by an average of the three most recent sample results, pursuant to Table 64413.1–E.

Table 64413.1–E. Influent Water Perchlorate, Nitrate, and Nitrite Points

Perchlorate, Nitrate, and Nitrite Data Average	*Points*
Less than or equal to the maximum contaminant level (MCL), as specified in Table 64431–A	0
For each contaminant greater than its MCL	5

(5) The points for other influent water contaminants with primary MCLs shall be a sum of the points for each of the inorganic contaminants (Table 64431–A), organic contaminants (Table 64444–A) and radionuclides (Tables 64442 and 64443). The points for each contaminant shall be based on an average of the three most recent sample results, pursuant to Table 64413.1–F. If monitoring for a contaminant has been waived pursuant to sections 64432(m) or (n), 64432.2(c), or 64445(d), the points shall be zero for that contaminant.

Table 64413.1–F. Influent Water Chemical and Radiological Contaminant Points

Contaminant Data Average	*Points*
Less than or equal to the MCL	0
Greater than the MCL	2
5 Times the MCL or greater	5

(6) The total points for surface water filtration treatment shall be the sum of the points of those treatment processes utilized by the facility for compliance with section 64652, pursuant to Table 64413.1–G.

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Table 64413.1–G. Points for Surface Water Filtration Treatment

Treatment	*Points*
Conventional, direct, or inline	15
Diatomaceous earth	12
Slow sand, membrane, cartridge, or bag filter	8
Backwash recycled as part of process	5

(7) The points for each treatment process utilized by the facility and not included in paragraph (6) that is used to reduce the concentration of one or more contaminants for which a primary MCL exists, pursuant to Table 64431–A, Table 64444–A, and Tables 64442 and 64443, shall be 10. Blending shall only be counted as a treatment process if one of the blended sources exceeds a primary MCL.

(8) The points for each treatment process not included in paragraphs (6), or (7) that is used to reduce the concentration of one or more contaminants for which a secondary MCL exists, pursuant to Tables 64449–A and 64449–B, shall be 3. Blending shall only be counted as a treatment process if one of the blended sources exceeds a secondary MCL.

(9) The points for each treatment process not included in paragraphs (6), (7), or (8) that is used for corrosion control or fluoridation shall be 3.

(10) The total points for disinfection treatment shall be the sum of the points for those treatment processes utilized by the facility for compliance with section 64654(a), pursuant to Table 64413.1–H.

Table 64413.1–H. Points for Disinfection Treatment

Treatment Process	*Points*
Ozone	10
Chlorine and/or chloramine	10
Chlorine dioxide	10
Ultraviolet (UV)	7

(11) The points for disinfection/oxidation treatment not included in paragraphs (6), (7), (8), or (10) shall be a sum of the points for all the treatment processes used at the facility pursuant to Table 64413.1–I.

Table 64413.1–I. Points for Disinfection/Oxidation Treatment without Inactivation Credit

Treatment Process	*Points*
Ozone	5
Chlorine and/or chloramine	5
Chlorine dioxide	5
Ultraviolet (UV)	3
Other oxidants	5

(12) The points for any other treatment process that alters the physical or chemical characteristics of the drinking water and that was not included in paragraphs (6), (7), (8), (9), (10), or (11) shall be 3.

(13) The points for facility flow shall be 2 per million gallons per day or fraction thereof of maximum permitted treatment facility capacity, up to a maximum of 50 points; except that for facilities utilizing only blending, the points shall be based on the flow from the contaminated source and the dilution flow required to meet the MCL(s) specified in Tables 64431–A, 64444–A, 64449–A, 64449–B, and Tables 64442 and 64443.

§ 64413.3. Classification of Distribution Systems.

(a) The distribution system for each community and nontransient- noncommunity water system shall be classified pursuant to Table 64413.3–A unless modified pursuant to subsection(b). For a wholesaler, the population served shall include the customers served by its retailers.

Table 64413.3–A. Distribution System Classifications

Population Served	*Class*
1,000 or less	D1
1,001 through 10,000	D2
10,001 through 50,000	D3
50,001 through 5 million	D4
Greater than 5 million	D5

(b) The class determined pursuant to (a) shall be upgraded by one level if the population served is 5 million or less and the sum of all the points from paragraphs (1) through (6) exceeds 20.

(1) The points for pressure zones shall be zero for up to three zones, 4 for four to ten zones, or 6 for more than ten zones.

(2) The points for disinfectants used shall be zero if no disinfectant is applied in the distribution system and no more than one type of disinfectant residual is entering the distribution system. The points shall be 5 if a single disinfectant or ammonia is applied in the distribution system. The points shall be 8 if there are multiple disinfectants in the system.

(3) The points based on the largest single pump in the system for which the distribution operator is responsible shall be 4 for up to fifty horsepower, or 6 for fifty or more horsepower.

(4) The points for distribution storage reservoirs in the system shall be 4 for one to five reservoirs, or 6 for greater than five.

(5) The points for one or more existing uncovered distribution reservoirs shall be 10.

(6) The points to be added if any of the distribution system customers are also served by a non-potable water distribution system shall be 6. This does not apply to wholesalers if the only customers receiving non-potable water are served by its retailers.

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§ 64413.5. Treatment Facility Staff Certification Requirements.

(a) Each water supplier shall designate at least one chief operator that meets the requirements specified in section 63765 for each water treatment facility utilized by the water system.

(b) Each water supplier shall designate at least one shift operator that meets the requirements specified in section 63765 for each water treatment facility utilized by the water system for each operating shift.

(c) Except as provided in (d), a chief operator or shift operator shall be on-site at all times that the facility is operating.

(d) If the water supplier's operations plan, submitted and approved pursuant to section 64661, demonstrates an equal degree of operational oversight and reliability with either unmanned operation or operation under reduced operator certification requirements, the chief operator or shift operator is not required to be on-site, but shall be able to be contacted within one hour.

(e) If there is no change in the treatment facility and the employed shift and/or chief operators, the water supplier shall be in compliance until January 1, 2003 with the shift and operator certification requirements that were in effect on December 31, 2000. If the water system employs a new shift and/or chief operator, that operator shall meet the certification requirements pursuant to section 63765(a).

§ 64413.7. Distribution System Staff Certification Requirements.

(a) Each water supplier shall designate at least one chief operator that meets the requirements specified in section 63770 for each distribution system utilized by the water system.

(b) Each water supplier shall designate at least one shift operator that meets the requirements specified in section 63770 for each distribution system utilized by the water system for each operating shift.

(c) The chief operator or shift operator shall be on-site or able to be contacted within one hour.

§ 64414. Standby Sources.

(a) A source which has been designated "standby" shall be monitored a minimum of once every compliance cycle for all inorganic, organic, and radiological MCLs, unless a waiver has been granted by the State Board pursuant to Section 64432(m) or (n) for inorganics, Section 64432.2(c) for asbestos, or Section 64445(d) for organics.

(b) A standby source which has previous monitoring results indicating nitrate or nitrite levels equal to or greater than 50 percent of the MCL shall collect and analyze a sample for nitrate and nitrite annually. In addition, upon activation of such a source, a sample shall be collected, analyzed for these chemicals and the analytical results reported to the State Board within 24 hours of activation.

(c) A standby source shall be used only for short-term emergencies of five consecutive days or less, and for less than a total of fifteen calendar days a year.

(d) Within 3 days after the short-term emergency use of a standby source, the water supplier shall notify the State Board. The notification shall include information on the reason for and duration of the use.

(e) The status of a designated standby source shall not be changed to that of a regular source of drinking water supply, unless the source meets all existing drinking water standards and approval is obtained from the State Board in advance.

(f) A standby source for which perchlorate has been previously detected shall have a sample collected and analyzed for perchlorate annually. Additionally, upon activation of such a source, a sample shall be collected and analyzed for perchlorate, and the analytical result shall be reported to the State Board within 48 hours of activation.

§ 64415. Laboratory and Personnel.

(a) Except as provided in subsection (b), required analyses shall be performed by laboratories certified by the State Board to perform such analyses pursuant to Article 3, commencing with section 100825, of Chapter 4 of Part 1 of Division 101, Health and Safety Code. Unless directed otherwise by the State Board, analyses shall be made in accordance with the following:

(1) U.S. EPA approved methods as prescribed at 40 Code of Federal Regulations sections 141.23 through 141.41, 141.66, and 141.89 (7-1-2019 edition), which are incorporated by reference;

(2) U.S. EPA approved methods as prescribed at 40 Code of Federal Regulations section 141.852 (78 Fed. Reg. 10270 (February 13, 2013), as amended at 79 Fed. Reg. 10665 (February 26, 2014)), which is incorporated by reference; and

(3) Methods used for analysis of hexavalent chromium shall be performed using one of the following:

(A) U.S. EPA Method 218.6: Determination of Dissolved Hexavalent Chromium in Drinking Water, Groundwater, and Industrial Wastewater Effluents by Ion Chromatography, Rev. 3.3, (May 1994), which is incorporated by reference in its entirety; and

(B) U.S. EPA Method 218.7: Determination of Hexavalent Chromium in Drinking Water by Ion Chromatography with Post-Column Derivatization and UV-Visible Spectroscopic Detection, Version 1.0, (November 2011), which is incorporated by reference in its entirety.

(b) Sample collection, and field tests including color, odor, turbidity, pH, temperature, and disinfectant residual shall be performed by personnel trained to perform such sample collections and/or tests by:

(1) The State Board;

(2) A laboratory certified pursuant to subsection (a); or

(3) An operator, certified by the State Board pursuant to section 106875(a) or (b) of the Health and Safety Code and trained by an entity in paragraph (1) or (2) to perform such sample collections and/or tests.

§ 64416. Sampling Plan for all Monitoring Except Bacteriological.

(a) Each public water system serving contiguous areas totaling more than 10,000 service connections shall submit a plan to the State Board for monitoring the quality of water.

(1) This plan shall be supported by analytical, hydrological and geological data, and may be developed in cooperation with other agencies or water suppliers.

(2) Constituents to be addressed in the plan shall include inorganic chemicals, organic chemicals, trihalomethanes, radioactivity, general minerals and general physical parameters.

(3) Sampling of certain wells on a rotating basis may be included in the plan if the water supplier is able to demonstrate with analytical, hydrological and geological data that those wells are producing similar quality water from the same aquifer.

(4) The water supplier shall submit an updated plan to the State Board at least once every ten years or at any time the plan no longer ensures representative monitoring of the system.

Article 2.5. Point-of-Use Treatment

§ 64417. Definitions.

"Point-of-use treatment device" or "POU" means a treatment device applied to a single tap for the purpose of reducing contaminant levels in drinking water at that tap.

§ 64418. General Provisions.

(a) Except for a proposed new community water system that does not have a domestic water supply permit, a public water system that meets the requirements of Health and Safety Code section 116380(a) may be permitted to use POUs in lieu of centralized treatment for the purpose of complying with one or more maximum contaminant levels or action levels in this Title, other than for microbial contaminants, volatile organic chemicals, organic chemicals that pose an inhalation risk, or radon, and as allowed under the state and federal Safe Drinking Water Acts, if:

(1) the public water system meets the requirements of this Article and any applicable statutory requirements;

(2) the public water system has:

(A) applied for funding from any federal, state, or local agency to correct the system's violations, and

(B) demonstrated to the State Board that centralized treatment for achieving compliance is not immediately economically feasible, as defined in section 64418.1;

(3) the public water system has applied for a permit or permit amendment to use POUs. The duration of the permit or permit amendment issued will be in accordance with Health and Safety Code section 116552;

(4) for a community water system, following a public hearing, the State Board determines pursuant to section 64418.6 that there is no substantial community opposition;

(5) the public water system has a State Board-approved:

(A) POU Treatment Strategy, as defined in section 64418.3,

(B) POU Operations and Maintenance Program, as defined in section 64418.4, and

(C) POU Monitoring Program, as defined in section 64418.5; and

(6) the public water system ensures that each building and each dwelling unit connected to the public water system has a POU installed pursuant to this Article.

(b) With State Board approval and without having to meet the requirement of paragraph (a)(6), a public water system may utilize POUs in lieu of centralized

treatment for the purpose of reducing contaminant levels, other than microbial contaminants, volatile organic chemicals, or radon, to levels at or below one or more of the maximum contaminant levels or action levels in this Title, in the water it supplies to some or all of the persons it serves, but the public water system will not be deemed in compliance without meeting the requirement of paragraph (a)(6). A public water system's application for a permit to utilize POUs pursuant to this subsection may include a request that one or more of the requirements of this article be amended or eliminated to address the public water system's specific utilization, and such request may be granted or denied by the State Board.

(c) Funding for centralized treatment is available when funding for centralized treatment, from any source, is received by, or otherwise placed under control of, the public water system.

(d) As used in this article, the estimated cost for both centralized treatment and POU treatment shall be the complete life cycle cost for a similar period of time.

§ 64418.1. Immediate Economic Feasibility of Centralized Treatment.

(a) To specifically meet the requirements of subparagraph 64418(a)(2)(B), a community water system, when comparing the costs of centralized treatment to the use of POU treatment, shall submit to the State Board information demonstrating that the:

(1) estimated annual cost of centralized treatment, per household, is more than one percent (1%) of the median household income (MHI) of the customers served by the community water system; and

(2) (A) if the community's annual MHI is equal to or less than the statewide annual MHI, the estimated annual cost of centralized treatment, per household, plus the median annual water bill from the most recent 12 months per household is more than 1.5 percent (1.5%) of the annual MHI of the customers served by the community water system, or

(B) if the community's annual MHI is greater than the statewide annual MHI, the estimated annual cost of centralized treatment, per household, plus the median annual water bill from the most recent 12 months per household is more than two percent (2%) of the annual MHI of the customers served by the community water system.

(b) A noncommunity water system shall submit to the State Board documents that demonstrate that centralized treatment is not immediately economically feasible.

§ 64418.2. POU Requirements.

(a) Each POU must:

(1) be independently certified in accordance with an American National Standard Institute (ANSI) standard that is applicable to the specific type of proposed POU and that adequately addresses a California drinking water standard; or

(2) be approved by the State Board upon determination that the proposed POU unit design, construction, treatment performance, and field or pilot test results can reliably produce water in compliance with California drinking water standards under local expected influent water quality and flow conditions;

(3) be owned, controlled, operated, and maintained by the public water system and/or a person(s) under contract with the public water system, to ensure proper operation,

maintenance, monitoring, and compliance with this Article and applicable drinking water standards;

(4) be equipped with a mechanical warning (e.g. alarm, light, etc.) that alerts users when a unit needs maintenance or is no longer operating in a manner that assures the unit is producing effluent meeting state and federal drinking water standards, unless the device is equipped with an automatic shut-off mechanism that prevents the flow of water under such circumstances; and

(5) be equipped with a totalizing flow meter if:

(A) the POU's treatment efficiency or capacity is volume limited; or

(B) if requested by the State Board following a determination that information about the quantity of water treated by the POU is necessary to assess POU efficiency.

(b) Except as provided in subsection (c), pilot testing shall be performed by the public water system, and/or a person(s) under contract with the public water system, on each proposed type of POU to establish its use limitations and operations and maintenance criteria, as well as verification that it will produce effluent that meets drinking water standards under local expected influent water quality and flow conditions. Pilot testing shall include the following steps:

(1) Prior to performing pilot testing, a pilot testing protocol shall be submitted to the State Board for review. The pilot testing protocol must be adequate to demonstrate that water treated by the POU will meet drinking water standards;

(2) Pilot testing for a POU shall be conducted in the manner and for the time period specified by the most current pilot testing protocol for that POU approved under section 64418.2(b)(1), and shall be conducted for no less than two months; and

(3) After completion of the pilot testing, the public water system shall submit a report to the State Board describing the results and findings of the pilot testing.

(c) The State Board may exempt a public water system from the pilot testing requirements in section 64418.2(b), or permit a reduced level of pilot testing required pursuant to subsection (b), if:

(1) the public water system demonstrates to the State Board that the POUs proposed for use have been tested, by the public water system or another person, under equivalent water quality and flow conditions; and

(2) the limitations, criteria, and effluent verification in subsection (b) can be ascertained and have been reported to the State Board.

§ 64418.3. POU Treatment Strategy.

(a) Prior to installing POUs, and as part of its permit application to use POU in lieu of centralized treatment, a public water system shall submit to the State Board a POU Treatment Strategy sufficient to reliably reduce levels of the contaminants listed in section 64418(a) and comply with drinking water standards. The POU Treatment Strategy shall include the following:

(1) A description of the compliance issues for which POUs are being proposed to address and how the use of POUs will achieve compliance;

(2) A description of how the public water system will determine the type, number, and location of POUs to ensure a sufficient number of devices are installed for human

consumption at each building and each dwelling unit connected to the public water system;

(3) The public water system's authority to require customers to accept POUs in lieu of centralized treatment and to take an action, such as discontinuing service, if a customer fails to accept POUs;

(4) The basis for the POU selection(s);

(5) The qualifications and identification of the person(s) responsible for POU installation, operation, maintenance, and water quality sampling and analyses;

(6) A Customer Education Program that includes information about the POU, how the devices work, required maintenance and monitoring, and the need for the person(s) responsible for the POU, as defined in paragraph (a)(5) of this section, to have access to the device to perform required maintenance and monitoring. The Customer Education Program shall be designed to reach all customers and shall be implemented prior to and following installation of POUs;

(7) The authority, ordinances, and/or access agreements adequate to allow the public water system's representatives access to customers' premises for POU installation, maintenance, and water quality monitoring, as well as the surveys necessary to meet paragraph (a)(2);

(8) Identification of applicable local regulatory requirements;

(9) A Consumer Notification Protocol designed to timely inform consumers, in the appropriate language(s), in the event that an installed POU fails to produce water that meets drinking water standards. The Consumer Notification Protocol shall include:

(A) an example of a notice that includes the requirements of Article 18 of this Title, and

(B) a plan for providing an alternative water supply that meets drinking water standards, consistent with section 64551.100 of this Title, in a quantity sufficient for daily household ingestion needs, to customers served by each installed POU not meeting drinking water standards. An alternative water supply shall be provided according to the following timeline;

1. as soon as possible, but no later than 24 hours following the receipt of results of confirmation samples indicating an MCL exceedance for nitrate, nitrite, nitrate plus nitrite, or perchlorate, or

2. as soon as possible, but no later than 7 days following the receipt of results of confirmation samples indicating an MCL exceedance for contaminants other than nitrate, nitrite, nitrate plus nitrite, or perchlorate;

(10) A Customer Notification Protocol for routine notifications that includes examples of notices, to be provided no less frequently than quarterly, in the appropriate language(s) to inform each customer and consumer:

(A) that only the taps for which POUs are installed provide water meeting drinking water standards, and

(B) regarding the mechanical warning or shut-off mechanism required pursuant to paragraph 64418.2(a)(5), including a telephone number that connects the customer or consumer to water system personnel or recording system that shall be accessible by water system personnel 24 hours a day, seven days a week, for the purpose of

providing the customer or consumer a reliable means of notifying personnel when the mechanical warning or shut-off mechanism is activated;

(11) The proposed schedules for:

(A) the distribution of public hearing information pursuant to section 64418.6,

(B) the public hearing required pursuant to section 64418.6,

(C) the distribution to customers of POU acceptance surveys pursuant to section 64418.6,

(D) POU installation, and

(E) the construction of centralized treatment; and

(12) An estimate of the percent of all customers within the public water system's service area who are expected to voluntarily allow installation of POU devices, as well as a description of how the public water system will address customers who do not.

(b) A public water system shall comply with the most current State Board-approved version of its POU Treatment Strategy at all times.

§ 64418.4. POU Operations and Maintenance (O&M) Program.

(a) Prior to installing POUs, and as part of its permit application to use POU in lieu of centralized treatment, a public water system shall submit to the State Board a POU Operations and Maintenance Program (O&M Program) sufficient to reliably reduce levels of the contaminants listed in section 64418(a) and comply with drinking water standards. The O&M Program shall include the following:

(1) An installation protocol that, at a minimum, describes locations and assurances that POUs will be accessible for operation and maintenance;

(2) The type and frequency of maintenance, at intervals specified by the manufacturer and determined by pilot testing, whichever is shorter, that ensures POUs produce effluent that meets drinking water standards;

(3) The number and type of auxiliary POUs and parts necessary to ensure continuous effective treatment;

(4) Replacement schedules for critical components and POUs necessary to ensure continuous effective treatment;

(5) The qualifications and identification of the person(s) responsible for POU installation, operation, and maintenance; and

(6) POU waste-handling and disposal procedures sufficient to ensure that wastes generated by the POU and the POU itself are properly and safely disposed of in accordance with federal, state and local requirements.

(b) To ensure a POU is properly operating and has not been bypassed, POUs shall be inspected by the public water system no less often than every twelve months and when a POU's effluent is monitored pursuant to section 64418.5.

(c) Based on the on-going operation and maintenance of installed POUs, a public water system shall revise its POU O&M Program as necessary to ensure continuous effective treatment and that POUs produce effluent that meets drinking water standards. Revised POU O&M Programs shall be submitted to the State Board for review and may not be implemented without State Board approval, confirming that the revised POU O&M Program meets the requirements of this section.

(d) A public water system shall maintain a copy of, and at all times implement the most current State Board-approved version of its POU O&M Program.

§ 64418.5. POU Monitoring Program.

(a) Prior to installing POUs, and as part of its permit application to use POU in lieu of centralized treatment, a public water system shall submit to the State Board a POU Monitoring Program sufficient to ensure that water treated by the proposed POU consistently meet drinking water standards. The POU Monitoring Program shall include the following:

(1) source water monitoring – quarterly, with samples collected during the same month (first, second, or third) of each calendar quarter;

(2) POU effluent – initially, with samples collected as soon as possible but no later than 72 hours after a device is installed; and

(3) POU effluent – on-going following the monitoring in paragraph (a)(2), annually, with one twelfth of all units sampled monthly on a rotating basis. After completion of one year of monitoring, a public water system may alternatively monitor one quarter of all units each calendar quarter provided that monitoring results do not exceed 75 percent (75%) of a contaminant's MCL, and the water system submits a revised monitoring plan to the State Board. Water systems shall resume monthly monitoring if results exceed 75 percent (75%) of a contaminant's MCL.

(b) For a contaminant other than nitrate, nitrite, nitrate plus nitrite, or perchlorate, after no less than one year of monitoring conducted pursuant to subsection (a), a public water system may reduce the number of POU units monitored to no less than one third of all installed units per year such that all installed units are monitored no less frequently than once every three years, if all the results of the on-going monitoring conducted pursuant to paragraph (a)(3) do not exceed 75 percent (75%) of a contaminant's MCL, and the public water system submits a revised monitoring plan to the State Board.

(c) In accordance with subsections 64432.8(b) and 64445.2(b) of this Title, the State Board may require additional monitoring for the contaminant of concern or other contaminants, including microbial contaminants, if monitoring results indicate a potential health risk associated with the contaminant, POU technology, or a public water system's compliance with this Article.

(d) The public water system shall revise its POU Monitoring Program as necessary to ensure continuous effective treatment based on the on-going operation and maintenance of installed POUs or additional monitoring required pursuant to subsection (c). Revised POU Monitoring Programs shall be submitted to the State Board for review and may not be implemented without State Board approval confirming that the revised POU Monitoring Program meets the requirements of this section.

(e) The public water system shall maintain a copy of and implement the most current State Board-approved version of its POU Monitoring Program prepared pursuant to this section.

(f) If a POU effluent sample result exceeds an MCL for a contaminant other than nitrate, nitrite, nitrate plus nitrite, or perchlorate, the public water system shall:

(1) implement the public notification and alternative water procedures identified in its most recent State Board-approved POU Treatment Strategy; and

(2) collect a confirmation sample within seven days of notification of the exceedance. If the confirmation sample, or the average of the original and confirmation sample, exceeds the MCL, notify the State Board within 48 hours of the result, complete corrective actions as soon as possible but within one month of receipt of the result, and increase the monitoring frequency, as requested by the State Board to assess the effectiveness of the corrective actions.

(g) If a POU effluent sample result exceeds an MCL for nitrate, nitrite, nitrate plus nitrite, or perchlorate:

(1) implement the public notification and alternative water procedures identified in its most recent State Board-approved POU Treatment Strategy; and

(2) collect a confirmation sample within 72 hours of notification of the exceedance. If the confirmation sample, or the average of the original and confirmation sample, exceeds the MCL, notify the State Board within 24 hours of the result, continue to provide alternative water until the corrective actions have been confirmed to be effective, complete corrective actions as soon as possible but within one month of receipt of the result, and increase the monitoring frequency, as requested by the State Board to assess the effectiveness of the corrective actions.

§ 64418.6. Public Hearing and Acceptance.

(a) A community water system shall conduct a customer survey and participate in, and provide information for, a public hearing held by the State Board. At least 30 days prior to placing information into a public repository per paragraph (a)(2), the public water system shall submit a Public Acceptance Protocol to the State Board for review. The Public Acceptance Protocol must satisfy the following requirements in order to receive State Board approval:

(1) Prior to conducting a customer survey, a community water system shall participate in and provide information for a public hearing that, at a minimum, disseminates the following to those in its service area:

(A) a description of the public water system's POU Treatment Strategy,

(B) a description of the adverse health effects, as specified in the appendices to section 64465, associated with the contaminant(s) of concern,

(C) a copy of those portions of the POU Operation and Maintenance Program and Monitoring Program that necessitates customer involvement,

(D) the estimate of any anticipated increase in water bills that may result from utilization of POUs, and

(E) the supporting documentation, assumptions, and calculations used to determine any anticipated increase in water bills proposed to be presented at the public hearing.

(2) At least 30 days prior to the public hearing, the community water system shall place the information to be presented at the public hearing into a publicly accessible repository and notify the State Board and those in its service area of the date, time, and location of the public hearing, as well as the location and hours of operation of the repository. If the public water system serves multi-unit residential dwellings including, but not limited to, apartments and residential institutions, whether sub-metered or not, the public water system shall provide notice to each resident of such residential dwellings.

(3) Following the public hearing, the community water system shall deliver a survey to each of its customers. The survey shall be delivered in a manner designed to reach each customer and in the language appropriate for communication with the customers. The survey shall consist of the following two choices:

(A) "I vote FOR the use of Point-of-Use treatment devices.", and

(B) "I vote AGAINST the use of Point-of-Use treatment devices."

(b) The community water system shall at all times comply with the most recent Public Acceptance Protocol approved by the State Board pursuant to this section.

(c) Use of POU treatment devices in lieu of centralized treatment shall be considered to have no substantial community opposition if:

(1) the sum of the number of non-voting customers and the number of customers voting against POUs, is less than half of the total customers; and

(2) no more than 25 percent of the total number of customers voted against POUs.

§ 64418.7. Recordkeeping and Reporting.

(a) A public water system shall maintain the following records for at least ten years and provide the records to the State Board, as specified in subsection (b) or upon request:

(1) results of all water quality monitoring conducted pursuant to this Article;

(2) the location and type of each installed POU;

(3) the date and type of maintenance and repairs performed; and

(4) verbal and written customer complaints received and the resulting corrective actions and/or responses.

(b) A public water system shall report to the State Board, at the frequency noted, the following:

(1) monthly — treated water quality monitoring results;

(2) quarterly — source water monitoring results and any investigations and/or corrective action(s) taken to ensure POUs meet the requirements of this Article including, but not limited to, POU maintenance, customer complaints, inspection results, and manufacturer notices pertaining to proper operation of devices.

(c) The reports required pursuant to subsection (b) shall be submitted to the State Board within ten days following the end of the applicable reporting period.

§ 64418.8. Compliance.

(a) A public water system using POUs in lieu of centralized treatment shall be in violation of an MCL if:

(1) for all POUs combined, during a 12-month interval, more than five percent (5%) of the results of the effluent monitoring conducted pursuant to section 64418.5 exceed an MCL;

(2) for a POU, the effluent fails to meet the MCL, which is determined in accordance with the applicable compliance determination requirements in this Title. Depending on the contaminant and concentration detected, compliance determination may be based on the result of a single sample, an initial sample averaged with one or two confirmation sample(s), or an average of four quarterly or six monthly samples; or

(3) a building or dwelling unit served by the water system does not have a POU installed pursuant to this Article.

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Article 2.7. Point-of-Entry Treatment

§ 64419. Definitions.

"Point-of-entry treatment device" or "POE" means a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminant levels in the drinking water distributed throughout the house or building. Notwithstanding the foregoing, where all the water supplied by a public water system for human consumption is treated by the public water system via a single device or facility, regardless of location of the device or facility, the public water system shall be considered to have centralized treatment.

§ 64420. General Provisions.

(a) Except for a proposed new community water system that does not have a domestic water supply permit, a public water systems that meets the requirements of Health and Safety Code section 116380(a) may be permitted to use POEs in lieu of centralized treatment for the purpose of complying with one or more maximum contaminant levels, action levels, or treatment techniques in this Title and as allowed under the state and federal State Drinking Water Acts, if:

(1) the public water system meets the requirements of this Article and any applicable statutory requirements;

(2) the public water system has:

(A) applied for funding from any federal, state, or local agency to correct the system's violations, and

(B) demonstrated to the State Board that centralized treatment for achieving compliance is not immediately economically feasible, as defined in section 64420.1;

(3) the public water system has applied for a permit or permit amendment to use POEs. The duration of the permit or permit amendment issued will be in accordance with Health and Safety Code section 116552;

(4) for a community water system, following a public hearing, the State Board determines pursuant to section 64420.6 that there is no substantial community opposition;

(5) the public water system has a State Board-approved:

(A) POE Treatment Strategy, as defined in section 64420.3,

(B) POE Operations and Maintenance Program, as defined in section 64420.4, and

(C) POE Monitoring Program, as defined in section 64420.5; and

(6) the public water system ensures that each building connected to the public water system has a POE installed pursuant to this Article.

(b) With State Board approval and without having to meet the requirement of paragraph (a)(6), a public water system may utilize POEs in lieu of centralized treatment for the purpose of reducing contaminant levels to levels at or below one or more of the maximum contaminant levels, action levels, or treatment techniques in this Title, in the water it supplies to some or all of the persons it serves, but the public water system will not be deemed in compliance without meeting the requirement of paragraph (a)(6). A public water system's application for a permit to utilize POEs pursuant to this subsection may include a request that one or more of the requirements of this article be amended

or eliminated to address the public water system's specific utilization, and such request may be granted or denied by the State Board.

(c) Funding for centralized treatment is available when funding for centralized treatment, from any source, is received by, or otherwise placed under control of, the public water system.

(d) As used in this article, the estimated cost for both centralized treatment and POE treatment shall be the complete life cycle cost for a similar period of time.

§ 64420.1. Immediate Economic Feasibility of Centralized Treatment.

(a) To specifically meet the requirements of subparagraph 64420 (a)(2)(B), a community water system, when comparing the costs of centralized treatment to the use of POE treatment, shall submit to the State Board information demonstrating that the:

(1) estimated annual cost of centralized treatment, per household, is more than one percent (1%) of the median household income (MHI) of the customers served by the community water system; and

(2) (A) if the community's annual MHI is equal to or less than the statewide annual MHI, the estimated annual cost of centralized treatment, per household, plus the median annual water bill from the most recent 12 months per household is more than 1.5 percent (1.5%) of the annual MHI of the customers served by the community water system, or

(B) if the community's annual MHI is greater than the statewide annual MHI, the estimated annual cost of centralized treatment, per household, plus the median annual water bill from the most recent 12 months per household is more than two percent (2%) of the annual MHI of the customers served by the community water system.

(b) A noncommunity water system shall submit to the State Board documents that demonstrate that centralized treatment is not immediately economically feasible.

§ 64420.2. POE Requirements.

(a) Each POE must:

(1) be independently certified in accordance with an American National Standard Institute (ANSI) standard that is applicable to the specific type of proposed POE and that adequately addresses a California drinking water standard; or

(2) be approved by the State Board upon determination that the proposed POE unit design, construction, treatment performance, and available field or pilot test results can reliably produce water in compliance with California drinking water standards under local expected influent water quality and flow conditions;

(3) be owned, controlled, operated, and maintained by the public water system and/or a person(s) under contract with the public water system, to ensure proper operation, maintenance, monitoring, and compliance with this Article and applicable drinking water standards;

(4) be equipped with a mechanical warning (e.g. alarm, light, etc.) that alerts users when a unit needs maintenance or is no longer operating in a manner that assures the unit is producing effluent meeting state and federal drinking water standards, unless the device is equipped with an automatic shut-off mechanism that prevents the flow of water under such circumstances; and

(5) be equipped with a totalizing flow meter.

(b) Except as provided in subsection (c), pilot testing shall be performed by the public water system, and/or a person(s) under contract with the public water system, on each proposed type of POE to establish its use limitations and operations and maintenance criteria, as well as verification that it will produce effluent that meets drinking water standards under local expected influent water quality and flow conditions. Pilot testing shall include the following steps:

(1) Prior to performing pilot testing, a pilot testing protocol shall be submitted to the State Board for review. The pilot testing protocol must be adequate to demonstrate that water treated by the POE will meet drinking water standards;

(2) Pilot testing for a POE shall be conducted in the manner and for the time period specified by the most current pilot testing protocol for that POE approved under section 64420.2(b)(1), and shall be conducted for no less than two months; and

(3) After completion of the pilot testing, the public water system shall submit a report to the State Board describing the results and findings of the pilot testing.

(c)The State Board may exempt a public water system from the pilot testing requirements in section 64420.2(b), or permit a reduced level of pilot testing required pursuant to subsection (b), if:

(1) the public water system demonstrates to the State Board that the POEs proposed for use have been tested, by the public water system or another person, under equivalent water quality and flow conditions; and

(2) the limitations, criteria, and effluent verification in subsection (b) can be ascertained and have been reported to the State Board.

§ 64420.3. POE Treatment Strategy.

(a) Prior to installing POEs, and as part of its permit application to use POE in lieu of centralized treatment, a public water system shall submit to the State Board a POE Treatment Strategy sufficient to reliably reduce levels of contaminants and comply with drinking water standards. The POE Treatment Strategy shall include each of the following:

(1) A description of the compliance issues for which POEs are being proposed to address and how the use of POEs will achieve compliance;

(2) A description of how the public water system will determine the type, number, and location of POEs to ensure POEs serve, in their entirety, each building connected to the public water system;

(3) The public water system's authority to require customers to accept POEs in lieu of centralized treatment and to take an action, such as discontinuing service, if a customer fails to accept POEs, or disconnects or modifies a POE installed pursuant to this Article;

(4) The basis for the POE selection(s);

(5) The qualifications and identification of the person(s) responsible for POE installation, operation, maintenance, and water quality sampling and analyses;

(6) A Customer Education Program that includes information about the POE, how the devices work, required maintenance and monitoring, and the need for the person(s) responsible for the POE, as defined in paragraph (a)(5) of this section, to have access to the device to perform required maintenance and monitoring. The Customer Education

Program shall be designed to reach all customers and shall be implemented prior to and following installation of POEs;

(7) The authority, ordinances, and/or access agreements adequate to allow the public water system's representatives access to customers' premises for POE installation, maintenance, and water quality monitoring, as well as the surveys necessary to meet paragraph (a)(2);

(8) Identification of applicable local regulatory requirements;

(9) A Consumer Notification Protocol designed to timely inform consumers, in the appropriate language(s), in the event that an installed POE fails to produce water that meets drinking water standards. The Consumer Notification Protocol shall include:

(A) an example of a notice that includes the requirements of Article 18 of this Title, and

(B) a plan for providing an alternative water supply that meets drinking water standards, consistent with section 64551.100 of this Title, in a quantity sufficient for daily household ingestion needs, to customers served by each installed POE not meeting drinking water standards. An alternative water supply shall be provided according to the following timeline;

1. as soon as possible, but no later than 24 hours following the receipt of results of confirmation samples indicating an MCL exceedance for nitrate, nitrite, nitrate plus nitrite, or perchlorate, or

2. as soon as possible, but no later than 7 days following the receipt of results of confirmation samples indicating an MCL exceedance for contaminants other than nitrate, nitrite, nitrate plus nitrite, or perchlorate;

(10) A Customer Notification Protocol for routine notifications that includes examples of notices, to be provided no less frequently than quarterly, in the appropriate language(s) to inform each customer:

(A) which water supplies are not treated by the POEs, and

(B) regarding the mechanical warning or shut-off mechanism required pursuant to paragraph 64420.2(a)(5), including a telephone number that connects the customer to water system personnel or recording system that shall be accessible by water system personnel 24 hours a day, seven days a week, for the purpose of providing the customer a reliable means of notifying personnel when the mechanical warning or shut-off mechanism is activated;

(11) The proposed schedules for:

(A) the distribution of public hearing information pursuant to section 64420.6,

(B) the public hearing required pursuant to section 64420.6,

(C) the distribution to customers of POE acceptance surveys pursuant to section 64420.6,

(D) POE installation, and

(E) the construction of centralized treatment;

(12) An estimate of the percent of all customers within the public water system's service area who are expected to voluntarily allow installation of POE devices, as well as a description of how the public water system will address customers who do not; and

(13) The means for ensuring that the rights and responsibilities of the customer, with respect to an installed POE, convey with title upon the sale or transfer of property to which the POE is attached.

(b) A public water system shall comply with the most current State Board-approved version of its POE Treatment Strategy at all times.

§ 64420.4. POE Operations and Maintenance (O&M) Program.

(a) Prior to installing POEs, and as part of its permit application to use POE in lieu of centralized treatment, a public water system shall submit to the State Board a POE Operations and Maintenance (O&M) Program sufficient to reliably reduce levels of contaminants and comply with drinking water standards. The POE O&M Program shall include the following:

(1) An installation protocol that, at a minimum, describes locations and assurances that POEs will be accessible for operation and maintenance;

(2) The type and frequency of maintenance, at intervals specified by the manufacturer and determined by pilot testing, whichever is shorter, that ensures POEs produce effluent that meets drinking water standards;

(3) The number and type of auxiliary POEs and parts necessary to ensure continuous effective treatment;

(4) Replacement schedules for critical components and POEs necessary to ensure continuous effective treatment;

(5) The qualifications and identification of the person(s) responsible for POE installation, operation, and maintenance; and

(6) POE waste-handling and disposal procedures sufficient to ensure that wastes generated by the POE and the POE itself are properly and safely disposed of in accordance with federal, state and local requirements.

(b) To ensure a POE is properly operating and has not been bypassed, POEs shall be inspected by the public water system no less often than every twelve months and when a POE's effluent is monitored pursuant to section 64420.5.

(c) Based on the on-going operation and maintenance of installed POEs, a public water system shall revise its POE O&M Program as necessary to ensure continuous effective treatment and that POEs produce effluent that meets drinking water standards. Revised POE O&M Programs shall be submitted to the State Board for review and may not be implemented without State Board approval confirming that the revised POE O&M Program meets the requirements of this section.

(d) A public water system shall maintain a copy of and implement the most current State Board-approved version of its POE O&M Program.

§ 64420.5. POE Monitoring Program.

(a) Prior to installing POEs, and as part of its permit application to use POE in lieu of centralized treatment, a public water system shall submit to the State Board a POE Monitoring Program sufficient to ensure that water treated by the proposed POE consistently meet drinking water standards. The POE Monitoring Program shall include the following:

(1) source water monitoring — quarterly, with samples collected during the same month (first, second, or third) of each calendar quarter;

(2) POE effluent — initially, with samples collected as soon as possible but no later than 72 hours after a device is installed; and

(3) POE effluent, on-going following the monitoring in paragraph (a)(2), annually, with one twelfth of all units sampled monthly on a rotating basis. After completion of one year of monitoring, a public water system may alternatively monitor one quarter of all units each calendar quarter provided that monitoring results do not exceed 75 percent (75%) of a contaminant's MCL, and the water system submits a revised monitoring plan to the State Board. Water systems shall resume monthly monitoring if results exceed 75 percent (75%) of a contaminant's MCL.

(b) For a contaminant other than nitrate, nitrite, nitrate plus nitrite, or perchlorate, after no less than one year of monitoring conducted pursuant to subsection (a), a public water system may reduce the number of POE units monitored to no fewer than one third of all installed units per year such that all installed devices are sampled no less frequently than once every three years, if all the results of the on-going monitoring conducted pursuant to paragraph (a)(3) do not exceed 75 percent (75%) of a contaminant's MCL, and the public water system submits a revised monitoring plan to the State Board.

(c) The State Board may require additional monitoring for the contaminant of concern or other contaminants, including microbial contaminants, if monitoring results indicate a potential health risk associated with the contaminant, POE technology, or a public water system's compliance with this Article.

(d) The public water system shall revise its POE Monitoring Program as necessary to ensure continuous effective treatment based on the on-going operation and maintenance of installed POEs or additional monitoring required pursuant to subsection (c). Revised POE Monitoring Programs shall be submitted to the State Board for review and may not be implemented without State Board approval confirming that the revised POE Monitoring Program meets the requirements of this section.

(e) The public water system shall maintain a copy of and implement the most current State Board-approved version of its POE Monitoring Program prepared pursuant to this section.

(f) If a POE effluent sample result exceeds an MCL for a contaminant other than nitrate, nitrite, nitrate plus nitrite, or perchlorate, the public water system shall:

(1) implement the public notification and alternative water procedures identified in its most current State Board-approved POE Treatment Strategy; and

(2) collect a confirmation sample within seven days of notification of the exceedance. If the confirmation sample, or the average of the original and confirmation sample, exceeds the MCL, notify the State Board within 48 hours of the result, complete corrective actions as soon as possible but within one month of receipt of the result, and increase the monitoring frequency, as requested by the State Board to assess the effectiveness of the corrective actions.

(g) If a POE effluent sample result exceeds an MCL for nitrate, nitrite, nitrate plus nitrite, or perchlorate;

(1) implement the public notification and alternative water procedures identified in its most current State Board-approved POE Treatment Strategy; and

(2) collect a confirmation sample within 72 hours of notification of the exceedance. If the confirmation sample, or the average of the original and confirmation sample, exceeds the MCL, notify the State Board within 24 hours of the result, continue to provide alternative water until the corrective actions have been confirmed to be effective, complete corrective actions as soon as possible but within one month of receipt of the result, and increase the monitoring frequency as requested by the State Board to assess the effectiveness of the corrective actions.

§ 64420.6. Public Hearing and Acceptance.

(a) A community water system shall conduct a customer survey and participate in, and provide information for, a public hearing held by the State Board. At least 30 days prior to placing information into a public repository per subsection (a)(2), the public water system shall submit a Public Acceptance Protocol, to the State Board for review. The Public Acceptance Protocol must satisfy the following requirements in order to receive State Board approval:

(1) Prior to conducting a customer survey, a community water system shall participate in and provide information for a public hearing that, at a minimum, disseminates the following to those in its service area:

(A) a description of the public water system's POE Treatment Strategy,

(B) the adverse health effects, as specified in the appendices to section 64465, associated with the contaminant(s) of concern,

(C) POE Operation and Maintenance Program and Monitoring Program information that necessitates customer involvement,

(D) the estimate of any anticipated increase in water bills that may result from utilization of POEs, and

(E) the supporting documentation, assumptions, and calculations used to determine any anticipated increase in water bills proposed to be presented at the public hearing.

(2) At least 30 days prior to the public hearing, the community water system shall place the information to be presented at the public hearing into a publicly accessible repository and notify the State Board and those in its service area of the date, time, and location of the public hearing, as well as the location and hours of operation of the repository. If the public water system serves multi-unit residential dwellings including, but not limited to, apartments and residential institutions, whether sub-metered or not, the public water system shall provide notice to each resident of such residential dwellings.

(3) Following the public hearing, the community water system shall deliver a survey to each of its customers. The survey shall be delivered in a manner designed to reach each customer and in the language appropriate for communication with the customers. The survey shall consist of the following two choices:

(A) "I vote FOR the use of Point-of-Entry treatment devices.", and

(B) "I vote AGAINST the use of Point-of-Entry treatment devices."

(b) The community water system shall at all times comply with the most recent Public Acceptance Protocol approved by the State Board pursuant to this section.

(c) Use of POE treatment devices in lieu of centralized treatment shall be considered to have no substantial community opposition if:

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(1) the sum of the number of non-voting customers and the number of customers voting against POEs, is less than half of the total customers; and

(2) no more than 25 percent of the total number of customers voted against POEs.

§ 64420.7. Recordkeeping and Reporting.

(a) A public water system shall maintain the following records for at least ten years and provide the records to the State Board, as specified in subsection (b) or upon request:

(1) results of all water quality monitoring conducted pursuant to this Article;

(2) the location and type of each installed POE;

(3) the date and type of maintenance and repairs performed; and

(4) verbal and written customer complaints received and the resulting corrective actions and/or responses.

(b) A public water system shall report to the State Board, at the frequency noted, the following:

(1) monthly — treated water quality monitoring results;

(2) quarterly — source water monitoring results and any investigations and/or corrective action(s) taken to ensure POEs meet the requirements of this Article including, but not limited to, POE maintenance, customer complaints, inspection results, and manufacturer notices pertaining to proper operation of devices.

(c) The reports required pursuant to subsection (b) shall be submitted to the State Board within ten days following the applicable reporting period.

§ 64420.8. Compliance.

(a) A public water system using POEs in lieu of centralized treatment shall be in violation of an MCL if:

(1) for all POEs combined, during a 12-month interval, more than five percent (5%) of the results of the effluent monitoring conducted pursuant to section 64420.5 exceed an MCL;

(2) for a POE, the effluent fails to meet the MCL, which is determined in accordance with the applicable compliance determination requirements in this Title. Depending on the contaminant and concentration detected, compliance determination may be based on the result of a single sample, an initial sample averaged with one or two confirmation sample(s), or an average of four quarterly or six monthly samples; or

(3) a building or dwelling unit served by the water system does not have a POE installed pursuant to this Article.

Article 3. Primary Standards—Bacteriological Quality

§ 64421. General Requirements.

(a) The requirements of this Article apply to public water systems.

(b) In addition to the bacteriological monitoring requirements in Sections 64423, 64424, 64425, and 64426.9, a public water system shall perform special purpose bacteriological monitoring as follows:

(1) After any system pressure loss to less than five psi. Samples collected shall represent the water quality in the affected portions of the system; and

(2) For a groundwater (not GWUDI) source that is treated with a primary or residual disinfectant on a continuous basis and is not monitored pursuant to Section 64654.8(b)(1)(B):

(A) A raw water sample shall be collected each calendar quarter, with samples collected during the same month (first, second, or third) of each calendar quarter; and

(B) If the raw water sample is total coliform-positive, a raw water sample shall be collected each month. If no coliforms are detected for a minimum of three consecutive months, a public water system may submit a request to the State Board to monitor in accordance with subparagraph (A).

(c) A public water system shall maintain documentation that the personnel performing sample collection and/or field tests under this Article have been trained pursuant to Section 64415(b). As a minimum, the documentation shall include the name and qualifications of the personnel who will be performing the sample collection and/or field tests.

(d) Plans, procedures, and requests to be submitted by a public water system to the State Board under this Article shall be in writing. For a request, the system shall state what is being requested, the basis for the request, and include any documentation to support the request.

§ 64422. Bacteriological Sample Siting Plan.

(a) By October 1, 2021, an existing public water system shall develop and submit to the State Board a bacteriological sample siting plan that identifies sampling sites and a sample collection schedule for the collection of bacteriological samples for total coliform analysis, subject to the following:

(1) The sample sites chosen shall be representative of water throughout the distribution system including each pressure zone, and areas supplied by each water source and distribution reservoir;

(2) Routine sampling may be rotated among the routine sample sites if the total number of sites needed to comply with paragraph (1) exceeds the number of samples required according to Table 64423–A. The rotation of sampling sites shall be described in the plan;

(3) Routine and repeat sampling may take place at a customer's premises, dedicated sampling station, or other designated compliance sample location;

(4) The physical location of routine and repeat sample sites and sampling points required by the Ground Water Rule (triggered source monitoring and assessment source monitoring) in Section 64430 shall be specified in the plan; and

(5) If applicable, the alternative sampling locations, dual purpose sampling locations, and special purpose sampling locations required in Table 64424–A, Table 64424–B, and Section 64421(b)(2), respectively, shall be specified in the plan.

(b) A public water system shall collect bacteriological samples for total coliform analysis in accordance with the State Board-approved bacteriological sample siting plan.

(c) A public water system shall submit an updated plan to the State Board at least once every ten years and within 30 days of the system's or State Board's determination that the plan no longer complies with subsection (a), the alternative monitoring location for repeat samples collected under Table 64424–A is no longer representative of a pathway for contamination of the distribution system, or dual purpose sampling specified in Table 64424–B is no longer representative of water quality in the distribution system.

§ 64423. Routine Sampling.

(a) A public water system shall collect routine bacteriological water samples as follows:

(1) The minimum number of samples for community water systems shall be based on the known population served or the total number of service connections, whichever results in the greater number of samples, as shown in Table 64423–A;

(2) The minimum number of samples for nontransient-noncommunity water systems shall be based on the known population served as shown in Table 64423–A during those months when the system is operating;

(3) The minimum number of samples for transient-noncommunity water systems using only groundwater (not GWUDI) and serving 1000 or fewer persons a month shall be one in each calendar quarter during which the system provides water to the public;

(4) The minimum number of samples for transient-noncommunity water systems using groundwater (not GWUDI) and serving more than 1000 persons during any month shall be based on the known population served as shown in Table 64423–A. For any quarter the system serves 1000 or fewer persons in each month and uses only groundwater (not GWUDI), and if the criteria in subsections (c)(2)(A) and (B) are met, the system may submit a request to the State Board to monitor in accordance with paragraph (3). The request shall include:

(A) Historical data that demonstrates the system has served 1000 or fewer persons in each month of the calendar quarter for which the request is being made; and

(B) A revised bacteriological sample siting plan with an updated sampling schedule;

(5) The minimum number of samples for transient-noncommunity water systems using approved surface water shall be based on the population served as shown in Table 64423–A. A system using groundwater under the direct influence of surface water shall begin monitoring at this frequency by the end of the sixth month after the State Board has designated the source to be approved surface water;

(6) The minimum number of samples for seasonal systems, and in lieu of paragraphs (2) through (5), shall be based on the population served as shown in Table 64423–A during those months when the system is operating;

(7) Samples shall be collected at regular time intervals throughout the month, except that a system using only groundwater (not GWUDI) which serves 4,900 persons or fewer may collect all required samples on a single day if they are taken from different sites;

(8) At least the minimum number of samples shall be taken even if the system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in Section 64426.7; and

(9) More than the minimum number of samples may be taken provided the samples are included in the bacteriological sample siting plan developed pursuant to Section 64422.

(b) In addition to the minimum sampling requirements, all public water systems using approved surface water which do not practice filtration in compliance with Sections 64650 through 64666, shall collect a minimum of one sample before or at the first service connection each day during which the turbidity level of the source water exceeds 1 NTU. The sample shall be collected within 24 hours of the first exceedance and shall be analyzed for total coliforms. If the system is unable to collect and/or analyze the sample within the 24-hour time period because of extenuating circumstances beyond its control, the system shall notify the State Board within the 24-hour time period, submit a request to the State Board for an extension, and comply with an alternative sample collection schedule specified by the State Board. Sample results shall be included in determining if the coliform treatment technique trigger in Section 64426.7 has been exceeded.

(c) A transient-noncommunity water system monitoring pursuant to subsection (a)(3):

(1) Shall, in the month following the occurrence of any of the following events, increase monitoring to one sample each month:

(A) The system triggers a Level 2 assessment or two Level 1 assessments in a rolling 12-month period;

(B) The system has an *E. coli* MCL violation;

(C) The system has a coliform treatment technique violation; or

(D) The system has two bacteriological monitoring violations or one bacteriological monitoring violation and one Level 1 assessment in a rolling 12-month period. For purposes of this subparagraph, failure to conduct bacteriological monitoring under Section 64423, 64423.1, 64424, or 64425 is a bacteriological monitoring violation;

(2) If monitoring pursuant to paragraph (1) and if all the following criteria are met, may submit a request to the State Board to return to routine monitoring pursuant to subsection (a)(3):

(A) Within the last 12 consecutive months, the system shall have a completed sanitary survey, site visit, or voluntary Level 2 assessment by the State Board and be determined by the State Board to be free of sanitary defects and have a protected water source; and

(B) Immediately prior to the request, the system shall have a clean compliance history for a minimum of 12 consecutive months; and

(3) Shall, in the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger exceedance), collect at least three routine samples. The system may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. If the system stops supplying water during the month following the total coliform-positive(s), at least three routine samples shall be collected during the first month the system resumes operation.

(d) A public water system in violation of the routine sample monitoring requirements of this section shall notify the State Board within 10 days after it learns of the violation and notify the public pursuant to Sections 64463, 64463.7, and 64465.

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(e) A public water system in violation of the reporting requirement in subsection (d) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

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Table 64423–A

Minimum Number of Routine Total Coliform Samples

Monthly Population Served[1]	*Service Connections*	*Minimum Number of Samples Per Month*
25 to 1000	15 to 400	1
1,001 to 2,500	401 to 890	2
2,501 to 3,300	891 to 1,180	3
3,301 to 4,100	1,181 to 1,460	4
4,101 to 4,900	1,461 to 1,750	5
4,901 to 5,800	1,751 to 2,100	6
5,801 to 6,700	2,101 to 2,400	7
6,701 to 7,600	2,401 to 2,700	8
7,601 to 8,500	2,701 to 3,000	9
8,501 to 12,900	3,001 to 4,600	10
12,901 to 17,200	4,601 to 6,100	15
17,201 to 21,500	6,101 to 7,700	20
21,501 to 25,000	7,701 to 8,900	25
25,001 to 33,000	8,901 to 11,800	30
33,001 to 41,000	11,801 to 14,600	40
41,001 to 50,000	14,601 to 17,900	50
50,001 to 59,000	17,901 to 21,100	60
59,001 to 70,000	21,101 to 25,000	70
70,001 to 83,000	25,001 to 29,600	80
83,001 to 96,000	29,601 to 34,300	90
96,001 to 130,000	34,301 to 46,400	100
130,001 to 220,000	46,401 to 78,600	120
220,001 to 320,000	78,601 to 114,300	150
320,001 to 450,000	114,301 to 160,700	180
450,001 to 600,000	160,701 to 214,300	210
600,001 to 780,000	214,301 to 278,600	240
780,001 to 970,000	278,601 to 346,400	270
970,001 to 1,230,000	346,401 to 439,300	300
1,230,001 to 1,520,000	439,301 to 542,900	330
1,520,001 to 1,850,000	542,901 to 660,700	360
1,850,001 to 2,270,000	660,701 to 810,700	390
2,270,001 to 3,020,000	810,701 to 1,078,600	420
3,020,001 to 3,960,000	1,078,601 to 1,414,300	450
3,960,001 or more	1,414,301 or more	480

[1] For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

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§ 64423.1. Sample Analysis and Reporting of Results.

(a) A public water system shall designate (label) each sample as routine, repeat, replacement, or "other" pursuant to Section 64421(b), and have each sample analyzed for total coliforms. The system also shall require the laboratory to analyze the same sample for Escherichia coli (*E. coli*) whenever the presence of total coliforms is indicated. As a minimum, the analytical results shall be reported in terms of the presence or absence of total coliforms and *E. coli,* in the sample, whichever is appropriate. If directed by the State Board, based on an identified sanitary defect, exceedance of a Level 1 or Level 2 coliform treatment technique trigger, history of total coliform-positive samples within the past 12 consecutive months, or determination of a possible significant rise in bacterial count in accordance with Section 64426, the analytical results shall be reported in terms of coliform density of total coliforms and *E. coli*, in the sample, whichever is appropriate.

(b) A public water system shall require the laboratory to notify the system within 24 hours, whenever the presence of total coliforms or *E. coli* is demonstrated in a sample or a sample is invalidated due to interference problems, pursuant to Section 64425(b), ensure that a contact person is available to receive these analytical results 24-hours a day, and provide the name(s) and contact information of the contact person(s) to the laboratory. The system shall also require the laboratory to immediately notify the State Board of any positive bacteriological results if the laboratory cannot make direct contact with the designated contact person within 24 hours.

(c) Analytical results of all required samples collected for a public water system in a calendar month shall be reported to the State Board not later than the tenth day of the following month, as follows:

(1) Systems serving more than 400 service connections or 1000 persons, or a wholesaler as defined in section 64402.20(a), shall submit a monthly summary of the bacteriological monitoring results to the State Board, which shall contain the following:

(A) Total number of samples collected;

(B) Number, sample collection date, and sample location of all total coliform and *E. coli*-positive samples;

(C) Number, sample collection date, sample location, and result of triggered groundwater source samples collected; and

(D) Sample collection date, sample location, and result for all repeat samples collected.

(2) Systems serving fewer than 10,000 service connections shall require the laboratory to submit copies of all required bacteriological monitoring results directly to the State Board; and

(3) Systems serving 10,000 or more service connections shall require the laboratory to submit copies of bacteriological monitoring results for all positive routine samples and all repeat samples directly to the State Board.

(d) A public water system in violation of the monitoring requirement of subsection (a) to test the same sample for *E. coli* following a total coliform-positive routine sample shall notify the State Board within 10 days after it learns of the violation and shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

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(e) A public water system in violation of the reporting requirement of subsection (c) to report monitoring results to the State Board or subsection (d) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64424. Repeat Sampling.

(a) If a routine sample is total coliform-positive, a public water system shall collect a repeat sample set as described in paragraph (1) within 24 hours of being notified of the positive result. The repeat samples shall all be collected within the same 24-hour time period. A single service connection system may submit a request to the State Board to allow the collection of the repeat sample set over a three-day period.

(1) A repeat sample set shall be at least three samples for each total coliform-positive sample.

(2) If the system is unable to collect the samples within the 24-hour time period specified in subsection (a) or deliver the samples to the laboratory within 24 hours after collection because of circumstances beyond its control, the system shall notify the State Board within 24 hours. The State Board will then determine how much time the system will have to collect the repeat samples.

(b) Unless the condition for using alternative sampling locations or dual purpose sampling locations in Table 64424–A or B, respectively, is met, when collecting the repeat sample set, a public water system shall collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken. Other repeat samples shall be collected within five service connections upstream or downstream of the original site. At least one sample shall be from upstream and one from downstream unless there is no upstream and/or downstream service connection. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the system shall still take all required repeat samples. The system may submit a request to the State Board to use an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided in Table 64424–B, a system required to conduct triggered source water monitoring under 40 CFR 141.402(a), which is incorporated by reference under Section 64430, shall take groundwater (not GWUDI) source sample(s) in addition to repeat samples required under this section. If monitoring pursuant to Table 64424–B and in violation of the *E. coli* MCL, the system shall comply with the additional Ground Water Rule requirements in Table 64424–C.

Table 64424–A
Alternative Sampling Locations

Type of Water System	*Sampling Requirement*
Public water system	The system may propose repeat monitoring locations to the State Board that the system believes to be representative of a pathway for contamination of the distribution system. The system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis

	in a standard operating procedure (SOP) in its bacteriological sample siting plan. The system shall design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations.

Table 64424–B
Dual Purpose Sampling Locations

Type of Water System	*Sampling Requirement*
Public water system using only a single groundwater (not GWUDI) well, serving 1,000 or fewer persons, and required to conduct triggered source water monitoring under 40 CFR 141.402(a), which is incorporated by reference under Section 64430	The system may propose repeat sampling locations to the State Board that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). The system may submit a request to the State Board to take one of its repeat samples at the monitoring location required for triggered source water monitoring (dual purpose sampling) under 40 CFR 141.402(a), which is incorporated by reference under Section 64430, if the system demonstrates to the State Board that the bacteriological sample siting plan remains representative of water quality in the distribution system. If approved by the State Board, the system may use that sample result to meet the monitoring requirements in both 40 CFR 141.402(a), which is incorporated by reference under Section 64430, and this section.

Table 64424–C
Additional Ground Water Rule Requirements

Results of Dual Purpose Sampling that Constitutes an E.coli *MCL Violation*	*Public Water System Action Required*
A repeat sample taken at the monitoring location required for triggered source water monitoring is *E. coli*-positive	The system shall comply with 40 CFR 141.402(a)(3), which is incorporated by reference under Section 64430. If the system takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the system may reduce the number of additional source water samples required under 40 CFR 141.402(a)(3), which is incorporated by reference under Section 64430, by the number of repeat samples taken at that location that were not *E. coli*-positive.
A system takes more than one repeat sample at the monitoring location required for triggered source water monitoring and more than one repeat sample is *E. coli*-positive	The system shall comply with 40 CFR 141.403(a)(1), which is incorporated by reference under Section 64430.

All repeat samples taken at the monitoring location required for triggered source water monitoring are *E. coli*-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is *E. coli*-positive	The system is not required to comply with 40 CFR 141.402(a)(3), which is incorporated by reference under Section 64430.

(c) If one or more samples in the repeat sample set is total coliform-positive, a public water system shall collect and have analyzed an additional set of repeat samples as specified in subsections (a) and (b). The system shall repeat this process until either no total coliforms are detected in one complete repeat sample set or the system determines that a coliform treatment technique trigger specified in Section 64426.7 has been exceeded as a result of a repeat sample being total coliform-positive and notifies the State Board by the end of the day on which this is determined. If a treatment technique trigger identified in Section 64426.7 is exceeded as a result of a routine sample being total coliform-positive, the system is required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(d) A public water system in violation of the repeat sample monitoring requirements of this section shall notify the State Board within 10 days after it learns of the violation and notify the public pursuant to Sections 64463, 64463.7, and 64465.

(e) A public water system in violation of the reporting requirement in subsection (d) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64425. Sample Invalidation.

(a) A public water system may request the State Board to invalidate a routine or repeat sample for which a total coliform-positive result has been reported if the system demonstrates:

(1) All repeat sample(s) collected at the same tap as the original total coliform-positive sample also are total coliform- positive and all repeat samples collected within five service connections of the original tap are not total coliform-positive; or

(2) The laboratory did not follow the prescribed analytical methods pursuant to Section 64415(a), based on a review of laboratory documentation by the State Board. The system shall submit to the State Board a written request for invalidation along with the laboratory documentation, the system's sample collection records and any observations noted during sample collection and delivery. The system shall require the laboratory to provide the system with documentation which shall include, but not be limited to:

(A) A letter from the director of the laboratory having generated the data, confirming the invalidation request by reason of laboratory accident or error;

(B) Complete sample identification, laboratory sample log number (if used), date and time of collection, date and time of receipt by the laboratory, date and time of analysis for the sample(s) in question;

(C) Complete description of the accident or error alleged to have invalidated the result(s);

(D) Copies of all analytical, operating, and quality assurance records pertaining to the incident in question; and

(E) Any observations noted by laboratory personnel when receiving and analyzing the sample(s) in question.

(b) Whenever any total coliform routine or repeat sample result indicative of the absence of total coliforms has been declared invalid by the laboratory due to interference problems as specified at 40 Code Federal Regulations, Section 141.853(c)(2) (78 Fed. Reg. 10270 (February 13, 2013)), which is incorporated by reference, the public water system shall collect a replacement sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system shall continue to re-sample at the original site within 24 hours and have the samples analyzed until a valid result is obtained. If the system is unable to collect the sample within the 24-hour time period or deliver the sample to the laboratory within 24 hours after collection because of circumstances beyond its control, the system shall notify the State Board within 24 hours. The State Board will then determine how much time the system will have to collect the replacement sample.

(c) A total coliform-positive sample invalidated under this section does not count towards meeting the minimum routine and repeat sample monitoring requirements of Sections 64423 and 64424, respectively.

(d) A public water system in violation of the replacement sample monitoring requirements of subsection (b) shall notify the State Board within 10 days after it learns of the violation and notify the public pursuant to Sections 64463, 64463.7, and 64465.

(e) A public water system in violation of the reporting requirement in subsection (d) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64426. Significant Rise in Bacterial Count.

(a) A public water system shall determine whether a possible significant rise in bacterial count has occurred for each month in which it is required to monitor for total coliforms. Results of all samples collected in a calendar month pursuant to Sections 64423, 64424, and 64425 that are not invalidated by the State Board or the laboratory shall be included in determining a possible significant rise in bacterial count. Special purpose samples such as those listed in Section 64421(b) and special purpose samples collected by a public water system during special investigations shall also be included to determine a possible significant rise in bacterial count.

(b) Any of the following criteria shall indicate a possible significant rise in bacterial count:

(1) A public water system collecting at least 40 samples per month has a total coliform-positive routine sample followed by two total coliform-positive repeat samples in the repeat sample set;

(2) A public water system has a sample which is positive for *E. coli*; or

(3) A system fails the *E. coli* Maximum Contaminant Level (MCL) as defined in Section 64426.1.

(c) When the coliform criteria specified in subsection (b) are reached or exceeded, the public water system shall:

(1) Contact the State Board by the end of the day on which the system is notified of the test result(s); and

(2) Within 24 hours on which the system is notified of the test result(s), conduct an investigation and submit to the State Board information on the current status of physical works and operating procedures which may have caused the elevated bacteriological findings, or any information on community illness suspected of being waterborne. This shall include, but not be limited to:

(A) Current operating procedures that are or could potentially be related to the increase in bacterial count;

(B) Any interruptions in the treatment process;

(C) System pressure loss to less than 5 psi;

(D) Vandalism and/or unauthorized access to facilities;

(E) Evidence indicating bacteriological contamination of facilities;

(F) Analytical results of any additional samples collected, including source samples;

(G) Community illness suspected of being waterborne; and

(H) Records of the investigation and any action taken.

(d) As soon as possible within 24 hours of receiving notification from the State Board determining there is a significant rise in bacterial count, based on the information submitted under subsection (c)(2), the public water system shall implement the emergency notification plan required by Section 116460, Health and Safety Code.

(e) Within 30 days on which the system is notified of the test result(s) indicating a possible significant rise in bacterial count, submit to the State Board a report on the investigation, sanitary defects detected (and if applicable, may note no sanitary defects were detected), corrective actions completed, and a proposed timetable for any corrective actions not already completed. The system shall notify the State Board within five business days when each scheduled corrective action is completed.

(f) A public water system in violation of the reporting requirement in subsection (c)(1) to notify the State Board when a routine or repeat sample is *E. coli*-positive shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64426.1*. E. coli* Maximum Contaminant Level (MCL).

(a) A public water system shall determine compliance with the *E. coli* MCL for each month in which it is required to monitor for total coliforms. Results of all samples collected in a calendar month pursuant to Sections 64423, 64424, and 64425 that are not invalidated by the State Board or the laboratory shall be included in determining compliance with the *E. coli* MCL. Special purpose samples such as those listed in section 64421(b) and special purpose samples collected by a public water system

during special investigations shall not be used to determine compliance with the *E. coli* MCL.

(b) A public water system is in violation of the *E. coli* MCL when any of the following occurs:

(1) The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample;

(2) The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample;

(3) The system fails to take all required repeat samples following an *E. coli*-positive routine sample; or

(4) The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(c) If a public water system is not in compliance with subsections (b)(1) through (4), during any month in which it supplies water to the public, the system shall notify the State Board by the end of the day on which this is determined. The system shall also notify the public pursuant to Sections 64463, 64463.1, and 64465.

(d) A public water system in violation of the reporting requirement in subsection (c) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

(e) A public water system shall not be eligible for a variance or exemption from the *E. coli* MCL.

§ 64426.6. Coliform Treatment Technique.

(a) A public water system is in violation of the coliform treatment technique when either of the following occurs:

(1) The system exceeds a treatment technique trigger specified in Section 64426.7 and then fails to conduct the required assessment or corrective actions within the timeframe specified in Section 64426.8; or

(2) A seasonal system fails to complete a State Board-approved start-up procedure prior to serving water to the public.

(b) A public water system in violation of the coliform treatment technique shall notify the State Board by the end of the next business day on which this is determined. The system shall also notify the public pursuant to Sections 64463, 64463.4, and 64465.

(c) A public water system in violation of the reporting requirement in subsection (b) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64426.7. Coliform Treatment Technique Triggers.

(a) A public water system shall determine whether a coliform treatment technique trigger has been exceeded for each month in which it is required to monitor for total coliforms. Results of all samples collected in a calendar month pursuant to Sections 64423, 64424, and 64425 that are not invalidated by the State Board or the laboratory shall be included in determining if a coliform treatment technique trigger has been exceeded. Special purpose samples such as those listed in Section 64421(b) and special purpose samples collected by a public water system during special

investigations shall not be used to determine if a coliform treatment technique trigger has been exceeded.

(b) A public water system exceeds a Level 1 treatment technique trigger if any of the following occurs:

(1) For a system taking 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month;

(2) For a system taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month; or

(3) The system fails to take every required repeat samples after any single total coliform-positive sample.

(c) A public water system exceeds a Level 2 treatment technique trigger if either of the following occurs:

(1) The system has an *E. coli* MCL violation; or

(2) The system has a second Level 1 treatment technique trigger, within a rolling 12-month period, unless the State Board has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

§ 64426.8. Level 1 and Level 2 Assessments and Corrective Actions.

(a) If a public water system exceeds a Level 1 treatment technique trigger in Section 64426.7(b), the system shall:

(1) Direct the system operator or owner to conduct and complete a Level 1 assessment as soon as practical after exceeding any trigger;

(2) Ensure that the assessment is conducted to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. The assessment shall include a review and identification of the minimum elements in subparagraphs (A) through (E) and shall describe sanitary defects detected (and if applicable, may note no sanitary defects were detected), corrective actions completed, and a proposed timetable for any corrective actions not already completed:

(A) Inadequacies in sample sites, sampling protocol, and sample processing;

(B) Atypical events that could affect distributed water quality or indicate that distributed water quality was impaired;

(C) Changes in distribution system maintenance and operation that could affect distributed water quality (including water storage);

(D) Source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small groundwater systems or whether a groundwater system is disinfected); and

(E) Existing water quality monitoring data;

(3) Conduct the assessment consistent with any State Board directives that tailor specific assessment elements with respect to the size and type of the water system and the size, type, and characteristics of the distribution system;

(4) Within 30 days after the system learns that it has exceeded a trigger, submit to the State Board the completed assessment; and

(5) If directed by the State Board, based on its determination that the completed assessment is not sufficient (including any proposed timetable for any corrective actions

not already completed), submit a revised completed assessment to the State Board within 30 days.

(b) If a public water system exceeds a Level 2 treatment technique trigger in Section 64426.7(c), the system shall:

(1) Arrange with the State Board to conduct and complete a Level 2 assessment, that includes a review and identification of the minimum elements in subsections (a)(2)(A) through (E) to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices, as soon as practical after exceeding any trigger;

(2) Comply with any expedited actions or additional actions required by the State Board in the case of an *E. coli* MCL violation;

(3) Within 30 days after the system learns that it has exceeded a trigger, submit to the State Board a completed assessment that includes the State Board assessment and describes sanitary defects detected (and if applicable, may note no sanitary defects were detected), corrective actions completed, and a proposed timetable for any corrective actions not already completed; and

(4) If directed by the State Board, based on its determination that the completed assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), submit a revised description of corrective actions completed and a proposed timetable for any corrective actions not already completed to the State Board within 30 days.

(c) A public water system shall correct sanitary defects found through either a Level 1 or Level 2 assessment conducted under subsection (a) or (b), respectively. For corrections not completed by the time of submission of the completed assessment, the system shall complete the corrective action(s) in compliance with a State Board-approved timetable. The system shall notify the State Board within five business days when each scheduled corrective action is completed.

(d) A public water system in violation of the reporting requirement of subsection (a)(4) or (b)(3) to submit a completed assessment to the State Board or subsection (c) to notify the State Board shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64426.9. Seasonal System Start-Up Procedure.

(a) By October 1, 2021, an existing seasonal system shall develop and submit to the State Board a start-up procedure. The procedure shall include, but not be limited to, the following:

(1) Inspection of water system components, including each source, treatment facility, distribution main, and distribution reservoir;

(2) Disinfection and flushing of water system components;

(3) Bacteriological monitoring, at each source (prior to treatment), each distribution reservoir, and, whichever results in the greater number of samples, each pressure zone or a minimum of three samples from the distribution system. The location of the distribution system samples shall be specified in the procedure;

(4) Disinfectant residual monitoring, at the same points and at the same time as total coliforms are sampled in paragraph (3);

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(5) Use of certified distribution operator(s) to supervise or perform activities in paragraphs (1) through (4); and

(6) Notification of the State Board of system shutdown and prior to serving water to the public.

(b) Prior to serving water to the public, a seasonal system shall:

(1) Complete a State Board-approved start-up procedure;

(2) Certify to the State Board it has complied with the State Board-approved start-up procedure;

(3) Submit to the State Board results of bacteriological and disinfectant residual monitoring performed under subsections (a)(3) and (4), respectively; and

(4) Obtain written State Board approval to serve water to the public.

(c) If the entire distribution system remains pressurized during the period a seasonal system is not operating, the seasonal system may submit a request to the State Board to be exempt from some or all of the requirements in subsections (a)(1) through (5).

(d) A seasonal system that proposes to use an alternative to a start-up procedure requirement in subsections (a)(1) through (5) shall:

(1) Demonstrate to the State Board that the proposed alternative would provide at least the same level of protection to public health; and

(2) Obtain written approval from the State Board prior to implementation of the alternative.

(e) A public water system in violation of the reporting requirement in subsections (b) and (b)(2) to certify completion of a State Board-approved start-up procedure prior to serving water to the public shall notify the public pursuant to Sections 64463, 64463.7, and 64465.

§ 64427. Sanitary Survey.

Systems which collect less than five routine samples per month shall be subject to an initial sanitary survey by the Department by June 29, 1994 for community water systems and June 29, 1999 for nontransient-noncommunity and transient-noncommunity water systems. Sanitary surveys shall be repeated every five years.

Article 3.5. Ground Water Rule

§ 64430. Requirements.

A public water system that uses ground water shall comply with the following provisions of 40 Code of Federal Regulations as they appear in the Ground Water Rule published in 71 Federal Register 65574 (November 8, 2006) and amended in 71 Federal Register 67427 (November 21, 2006), 74 Federal Register 30953 (June 29, 2009), and 78 Federal Register 10270 (February 13, 2013), which are hereby incorporated by reference: Sections 141.21(d)(3), 141.28(a), 141.153(h)(6), Appendix A to Subpart O (Consumer Confidence Reports), 141.202(a)(8), 141.203(a)(4), Appendices A and B to Subpart Q (Public Notification), and 141.400 through 141.405, except that in:

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(a) Sections 141.402(a)(1)(iii), (a)(2), (a)(4)(i), (a)(4)(ii)(A), (a)(5)(i), and (a)(5)(ii), the phrase "§§ 141.854 through 141.857" is replaced by "22 California Code of Regulation Section 64423";

(b) Section 141.402(a)(1)(iii), the phrase "§ 141.853(c)" is replaced by "22 California Code of Regulation Section 64425";

(c) Section 141.402(a)(2)(ii), the phrase "§ 141.853" is replaced by "22 California Code of Regulation Section 64422";

(d) Section 141.402(a)(2)(iv), the phrases "subpart Y" and "§ 141.858" are replaced by "22 California Code of Regulation Section 64424"; and

(e) Section 141.405(b)(4), the phrase "§ 141.853" is replaced by "22 California Code of Regulation Section 64425".

[Note: The Code of Federal Regulations text pertaining to the above section is provided in Addendum A of this book.]

Article 4. Primary Standards—Inorganic Chemicals

§ 64431. Maximum Contaminant Levels—Inorganic Chemicals.

Public water systems shall comply with the primary MCLs in Table 64431–A as specified in this article.

Table 64431–A

Maximum Contaminant Levels Inorganic Chemicals

Chemical	*Maximum Contaminant Level, mg/L*
Aluminum	1.
Antimony	0.006
Arsenic	0.010
Asbestos	7 MFL*
Barium	1.
Beryllium	0.004
Cadmium	0.005
Chromium (hexavalent)	0.010
Chromium (total)	0.05
Cyanide	0.15
Fluoride	2.0
Mercury	0.002
Nickel	0.1
Nitrate (as nitrogen)	10.
Nitrate+Nitrite (sum as nitrogen)	10.
Nitrite (as nitrogen)	1.
Perchlorate	0.006
Selenium	0.05
Thallium	0.002

* MFL=million fibers per liter; MCL for fibers exceeding 10 µm in length.

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§ 64432. Monitoring and Compliance—Inorganic Chemicals.

(a) All public water systems shall monitor to determine compliance with the nitrate and nitrite MCLs in Table 64431–A, pursuant to subsections (d) through (f) and Section 64432.1. All community and nontransient-noncommunity water systems shall monitor to determine compliance with the perchlorate MCL, pursuant to subsections (d), (e), and (l), and section 64432.3. All community and nontransient-noncommunity water systems shall also monitor to determine compliance with the other MCLs in Table 64431–A, pursuant to subsections (b) through (n) and, for asbestos, section 64432.2. Monitoring shall be conducted in the year designated by the State Board of each compliance period beginning with the compliance period starting January 1, 1993.

(b) Unless directed otherwise by the State Board, each community and nontransient-noncommunity water system shall initiate monitoring for an inorganic chemical within six months following the effective date of the regulation establishing the MCL for the chemical and the addition of the chemical to Table 64431–A.

If otherwise performed in accordance with this section, groundwater monitoring for an inorganic chemical performed no more than two years prior to the effective date of the regulation establishing the MCL may be used to satisfy the requirement for initiating monitoring within six months following such effective date.

(c) Unless more frequent monitoring is required pursuant to this Chapter, the frequency of monitoring for the inorganic chemicals listed in Table 64431–A, except for asbestos, nitrate/nitrite, and perchlorate, shall be as follows:

(1) Each compliance period, all community and nontransient-noncommunity systems using groundwater shall monitor once during the year designated by the State Board. The State Board will designate the year based on historical monitoring frequency and laboratory capacity. All community and nontransient-noncommunity systems using approved surface water shall monitor annually. All systems monitoring at distribution entry points which have combined surface and groundwater sources shall monitor annually.

(2) Quarterly samples shall be collected and analyzed for any chemical if analyses of such samples indicate a continuous or persistent trend toward higher levels of that chemical, based on an evaluation of previous data.

(d) For the purposes of sections 64432, 64432.1, 64432.2, and 64432.3, detection shall be defined by the detection limits for purposes of reporting (DLRs) in Table 64432–A.

Table 64432–A

Detection Limits for Purposes of Reporting (DLRs) for Regulated Inorganic Chemicals

Chemical	*Detection Limit for Purposes of Reporting (DLR) (mg/L)*
Aluminum	0.05
Antimony	0.006
Arsenic	0.002
Asbestos	0.2 MFL>10um*

Barium	0.1
Beryllium	0.001
Cadmium	0.001
Chromium (hexavalent)	0.0001
Chromium (total)	0.01
Cyanide	0.1
Fluoride	0.1
Mercury	0.001
Nickel	0.01
Nitrate (as nitrogen)	0.4
Nitrite (as nitrogen)	0.4
Perchlorate	0.002
	0.001 (Effective January 1, 2024)
Selenium	0.005
Thallium	0.001

* MFL=million fibers per liter; DLR for fibers exceeding 10 µm in length.

(e) Samples shall be collected from each water source or a supplier may collect a minimum of one sample at every entry point to the distribution system which is representative of each source after treatment. The system shall collect each sample at the same sampling site, unless a change is approved by the State Board.

(f) A water system may request approval from the State Board to composite samples from up to five sampling sites, provided that the number of sites to be composited is less than the ratio of the MCL to the DLR. Approval will be based on a review of three years of historical data, well construction and aquifer information for groundwater, and intake location, similarity of sources, and watershed characteristics for surface water. Compositing shall be done in the laboratory.

(1) Systems serving more than 3,300 persons shall composite only from sampling sites within a single system. Systems serving 3,300 persons or less may composite among different systems up to the 5-sample limit.

(2) If any inorganic chemical is detected in the composite sample at a level equal to or greater than one fifth of the MCL, a follow-up sample shall be analyzed within 14 days from each sampling site included in the composite for the contaminants which exceeded the one-fifth-MCL level. If available, duplicates of the original sample taken from each sampling site used in the composite may be used instead of resampling; the analytical results shall be reported within 14 days. The water supplier may collect up to two additional samples each from one or more of the sources to confirm the result(s).

(3) Compliance for each site shall be determined on the basis of the individual follow-up samples, or on the average of the follow-up and confirmation sample(s) if the supplier collects confirmation sample(s) for each detection.

(g) If the level of any inorganic chemical, except for nitrate, nitrite, nitrate plus nitrite, or perchlorate, exceeds the MCL, the water supplier shall do one of the following:

(1) Inform the State Board within 48 hours and monitor quarterly beginning in the next quarter after the exceedance occurred; or

(2) Inform the State Board within seven days from the receipt of the analysis and, as confirmation, collect one additional sample within 14 days from receipt of the analysis. If

the average of the two samples collected exceeds the MCL, this information shall be reported to the State Board within 48 hours and the water supplier shall monitor quarterly beginning in the next quarter after the exceedance occurred.

(h) If the concentration of an inorganic chemical exceeds ten times the MCL, within 48 hours of receipt of the result the water supplier shall notify the State Board and resample as confirmation. The water supplier shall notify the State Board of the result(s) of the confirmation sample(s) within 24 hours of receipt of the confirmation result(s).

(1) If the average concentration of the original and confirmation sample(s) is less than or equal to ten times the MCL, the water supplier shall monitor quarterly beginning in the quarter following the quarter in which the exceedance occurred.

(2) If the average concentration of the original and confirmation sample(s) exceeds ten times the MCL, the water supplier shall, if directed by the State Board;

(A) Immediately discontinue use of the contaminated water source; and

(B) Not return the source to service without written approval from the State Board.

(i) Compliance with the MCLs shall be determined by a running annual average; if any one sample would cause the annual average to exceed the MCL, the system is immediately in violation. If a system takes more than one sample in a quarter, the average of all the results for that quarter shall be used when calculating the running annual average. If a system fails to complete four consecutive quarters of monitoring, the running annual average shall be based on an average of the available data.

(j) If a system using groundwater has collected a minimum of two quarterly samples or a system using approved surface water has collected a minimum of four quarterly samples and the sample results have been below the MCL, the system may apply to the State Board for a reduction in monitoring frequency.

(k) Water quality data collected prior to January 1, 1990, and/or data collected in a manner inconsistent with this section shall not be used in the determination of compliance with the monitoring requirements for inorganic chemicals.

(l) Water quality data collected in compliance with the monitoring requirements of this section by a wholesaler providing water to a public water system shall be acceptable for use by that system for compliance with the monitoring requirements of this section.

(m) A water system may apply to the State Board for a waiver from the monitoring frequencies specified in subsection (c)(1), if the system has conducted at least three rounds of monitoring (three periods for groundwater sources or three years for approved surface water sources) and all previous analytical results are less than the MCL. The water system shall specify the basis for its request. If granted a waiver, a system shall collect a minimum of one sample per source while the waiver is in effect and the term of the waiver shall not exceed one compliance cycle (i.e., nine years).

(n) A water system may be eligible for a waiver from the monitoring frequencies for cyanide specified in subsection (c)(1) without any prior monitoring if it is able to document that it is not vulnerable to cyanide contamination pursuant to the requirements in section 64445(d)(1) or (d)(2).

(o) Transient-noncommunity water systems shall monitor for the inorganic chemicals in Table 64431–A as follows:

(1) All sources shall be monitored at least once for fluoride; and

(2) Surface water sources for parks and other facilities with an average daily population use of more than 1,000 people and/or which are determined to be subject to potential contamination based on a sanitary survey shall be monitored at the same frequency as community water systems.

(p) A water system shall comply with the chromium (hexavalent) MCL by the applicable compliance date in Table 64432-B.

Table 64432-B

Chromium (Hexavalent) MCL Compliance Date

System Size (Service Connections Served on October 1, 2024)	Chromium (Hexavalent) MCL Compliance Date
10,000 or greater	October 1, 2026
1,000 to 9,999	October 1, 2027
Fewer than 1,000	October 1, 2028

(q) If before the applicable compliance date in Table 64432-B, a water system's monitoring for chromium (hexavalent) conducted pursuant to subsection (b) demonstrates an MCL exceedance as calculated in accordance with subsection (i), then no later than 90 days after the MCL exceedance a water system shall submit to the State Board a Hexavalent Chromium MCL Compliance Plan that is sufficient to demonstrate how the system will comply with the chromium (hexavalent) MCL.

(1) The Hexavalent Chromium MCL Compliance Plan shall state how the water system will comply with the chromium (hexavalent) MCL and include, at a minimum, the following:

(A) The proposed method for complying with the chromium (hexavalent) MCL; if a new or modified treatment process is proposed, the Hexavalent Chromium MCL Compliance Plan shall include a pilot study adequate to demonstrate that the new or modified treatment process will result in compliance with the chromium (hexavalent) MCL;

(B) If the proposed compliance method requires construction, the date by which the water system will submit to the State Board final plans and specifications for the proposed method of compliance;

(C) If the proposed compliance method requires construction, the anticipated dates for commencing construction and completing 100 percent of construction;

(D) If a new or modified treatment process is proposed, the anticipated date by which a Hexavalent Chromium Operations Plan as specified in subsection (r) will be submitted.

(2) A public water system may make amendments to its Hexavalent Chromium MCL Compliance Plan. Any amendment made shall be submitted to the State Board for review and approval that it meets the requirements of paragraph (1).

(3) A water system shall implement its State Board approved Hexavalent Chromium MCL Compliance Plan by the dates set forth therein.

(r) A water system utilizing a new or modified treatment process to comply with the chromium (hexavalent) MCL shall, prior to serving water treated by the new or modified

treatment process to the public, submit to the State Board for review and approval a Hexavalent Chromium Operations Plan sufficient to ensure that water treated by the new or modified treatment process reliably and continuously meets the chromium (hexavalent) MCL. The Hexavalent Chromium Operations Plan shall include, at a minimum, the following:
(1) Performance monitoring program that sets out how and when treatment will be monitored to ensure compliance with the chromium (hexavalent) MCL;
(2) A program for maintenance of treatment process equipment that describes how and when equipment will be maintained and when equipment replacement is needed to ensure treatment is operating as designed;
(3) A description of each treatment unit process and how it is operated;
(4) A description of procedures used to determine chemical dose rates sufficient to ensure the treatment process is operating as designed;
(5) A description of reliability features incorporated into the treatment process to ensure operation as designed; and
(6) Treatment media inspection program sufficient to ensure the media is inspected at intervals and for conditions necessary to ensure compliance with the chromium (hexavalent) MCL.

§ 64432.1. Monitoring and Compliance—Nitrate and Nitrite.

(a) To determine compliance with the MCL for nitrate in Table 64431–A, all public water systems using groundwater and transient-noncommunity systems using approved surface water shall monitor annually, and all community and nontransient-noncommunity systems using approved surface water shall monitor quarterly.

(1) The water supplier shall require the laboratory to notify the supplier within 24 hours whenever the level of nitrate in a single sample exceeds the MCL, and shall ensure that a contact person is available to receive such analytical results 24-hours a day. The water supplier shall also require the laboratory to immediately notify the State Board of any acute nitrate MCL exceedance if the laboratory cannot make direct contact with the designated contact person within 24 hours. Within 24 hours of notification, the water supplier shall:

(A) Collect another sample, and

(B) Analyze the new sample; if the average of the two nitrate sample results exceeds the MCL, report the result to the State Board within 24 hours. If the average does not exceed the MCL, inform the State Board of the results within seven days from the receipt of the original analysis.

(C) If a system is unable to resample within 24 hours, it shall notify the consumers by issuing a Tier 1 Public Notice pursuant to section 64463.1 and shall collect and analyze a confirmation sample within two weeks of notification of the results of the first sample.

(2) For public water systems using groundwater, the repeat monitoring frequency shall be quarterly for at least one year following any one sample in which the concentration is greater than or equal to 50 percent of the MCL. After four consecutive quarterly samples are less than the MCL, a system may request that the State Board reduce monitoring frequency to annual sampling.

(3) For public water systems using approved surface water, the repeat monitoring frequency shall be quarterly following any one sample in which the concentration is greater than or equal to 50 percent of the MCL. After four consecutive quarterly samples are less than 50 percent of the MCL, a system may request that the State Board reduce monitoring frequency to annual sampling. A system using approved surface water shall return to quarterly monitoring if any one sample is greater than or equal to 50 percent of the MCL.

(4) After any round of quarterly sampling is completed, each community and nontransient-noncommunity system which initiates annual monitoring shall take subsequent samples during the quarter which previously resulted in the highest analytical results.

(b) All public water systems shall monitor to determine compliance with the MCL for nitrite in Table 64431–A, by taking one sample at each sampling site during the compliance period beginning January 1, 1993.

(1) If the level of nitrite in a single sample is greater than the MCL, the water supplier shall proceed as for nitrate in accordance with paragraph (a)(1) of this section.

(2) The repeat monitoring frequency for systems with an analytical result for nitrite that is greater than or equal to 50 percent of the MCL shall be quarterly monitoring for at least one year. After four consecutive quarterly samples are less than the MCL, a system may request that the State Board reduce monitoring frequency to annual sampling, collecting subsequent samples during the quarter which previously resulted in the highest analytical results.

(3) The repeat monitoring frequency for systems with an analytical result for nitrite that is less than 50 percent of the MCL shall be one sample during each compliance period (every three years).

(c) All public water systems shall determine compliance with the MCL for nitrate plus nitrite in Table 64431–A. If the level exceeds the MCL, the water supplier shall proceed as for nitrate in accordance with paragraphs (a)(1) through (a)(4) of this section.

§ 64432.2. Monitoring and Compliance—Asbestos.

(a) All community and nontransient-noncommunity water systems are required to monitor to determine compliance with the MCL for asbestos in Table 64431–A during the year designated by the State Board of the first compliance period of each nine-year compliance cycle, beginning in the compliance period starting January 1, 1993. The State Board will designate the year based on historical monitoring frequency and laboratory capacity.

(1) If a groundwater system is vulnerable to asbestos contamination solely in its source water, it shall collect one sample at every entry point to the distribution system which is representative of each water source after treatment and proceed in accordance with Subsections 64432(c)(2) through (e) and Subsections 64432(g) through (l).

(2) All approved surface water systems shall be designated vulnerable to asbestos contamination in their source waters. If a surface water system is vulnerable solely in its source water, it shall proceed as in paragraph (1) above.

(3) If a system is vulnerable to asbestos contamination due to leaching of asbestos-cement pipe, with or without vulnerability to asbestos contamination in its source water,

it shall take one sample at a tap served by asbestos-cement pipe under conditions where asbestos contamination is most likely to occur.

(b) If the level of asbestos exceeds the MCL in Table 64431–A, the supplier shall report to the State Board within 48 hours and monitor quarterly beginning in the next quarter after the violation occurred. A system may request that the State Board reduce monitoring frequency to one sample every compliance cycle, pursuant to Section 64432(j).

(c) If a system is not vulnerable either to asbestos contamination in its source water or due to leaching of asbestos-cement pipe, it may apply to the State Board for a waiver of the monitoring requirements in paragraphs (a)(1) through (3) of this section. The State Board will determine the vulnerability of groundwater sources on the basis of historical monitoring data and possible influence of serpentine formations. Vulnerability due to leaching of asbestos-cement pipe will be determined by the State Board on the basis of the presence of such pipe in the distribution system and evaluation of the corrosivity of the water. The period of the waiver shall be three years.

§ 64432.3. Monitoring and Compliance — Perchlorate.

(a) For initial monitoring for the perchlorate MCL, each community and nontransient-noncommunity water system shall collect two samples at each source in a year, five to seven months apart. At least one of the samples shall be collected during the period from May 1 through September 30 (vulnerable time), unless the State Board specifies a different vulnerable time for the water system due to seasonal conditions related to use, manufacture and/or weather.

(b) Data collected since January 3, 2001, that is in conformance with subsection (a) may be used to comply with the initial monitoring requirement.

(c) After meeting the initial monitoring requirements in subsection (a) and if no perchlorate is detected, during each compliance period each water system:

(1) Using groundwater, shall monitor once during the year designated by the State Board;

(2) Using approved surface water, shall monitor annually; and

(3) Monitoring at distribution entry points that have combined surface and groundwater sources, shall monitor annually; if perchlorate is detected in the water from the combined sources, the water system shall sample each source individually to determine which is contaminated.

(d) The water supplier shall require the laboratory to notify the supplier within 48 hours of the result whenever the level of perchlorate in a single sample exceeds the MCL, and shall ensure that a contact person is available to receive such analytical results 24-hours a day. The water supplier shall also require the laboratory to immediately notify the State Board of any perchlorate MCL exceedance if the laboratory cannot make direct contact with the designated contact person within 48 hours. Within 48 hours of notification of the result, the water supplier shall:

(1) Collect and analyze a confirmation sample, and

(2) If the average of the two perchlorate sample results exceeds the MCL, report the result to the State Board within 48 hours. If the average does not exceed the MCL,

inform the State Board of the results within seven days from the receipt of the original analytical result.

(3) If a system is unable to resample within 48 hours, it shall issue a Tier 1 notice to the consumers in accordance with sections 64463 and 64463.1 and shall collect and analyze a confirmation sample within two weeks of notification of the results of the first sample.

(e) A water system shall monitor quarterly any source in which perchlorate has been detected. After four consecutive quarterly samples indicate that perchlorate is not present at or above the DLR, a system may request that the State Board reduce monitoring to the frequencies specified in paragraphs (c)(1) through (3).

(f) A water system serving less than 10,000 persons may apply to the State Board for a variance from the perchlorate MCL if it can demonstrate that the estimated annualized cost per household for treatment to comply with the MCL exceeds 1% of the median household income in the community within which the customers served by the water system reside.

§ 64432.8. Sampling of Treated Water Sources.

(a) Each water supplier utilizing treatment to comply with one or more MCL(s) in Table 64431–A shall collect monthly samples of the treated water at a site prior to the distribution system and analyze for the chemical(s) for which treatment is being applied. If the treated water exceeds an MCL, other than a nitrate, nitrite, nitrate plus nitrite, or perchlorate MCL, within 48 hours of receipt of the result the water supplier shall resample the treated water to confirm the result and report the initial result to the State Board. The result of the analysis of the confirmation sample shall be reported to the State Board within 24 hours of receipt of the confirmation result. For nitrate, nitrite, nitrate plus nitrite, or perchlorate treated water monitoring, the water supplier shall comply with the requirements of section 64432.1(a)(1) for nitrate, section 64432.1(b)(1) for nitrite, section 64432.1(c) for nitrate plus nitrite, and section 64432.3(d) for perchlorate.

(b) The State Board may require more frequent monitoring based on an evaluation of the treatment process used, the treatment effectiveness and efficiency, and the concentration of the inorganic chemical in the water source.

Article 4.1. Fluoridation

§ 64433. System Requirements and Exemptions.

(a) Any public water system with 10,000 service connections or more that does not have a fluoridation system shall install such a system pursuant to the requirements in this article if the State Board identifies a source of sufficient funds not excluded by Health and Safety Code section 116415 to cover capital and any associated costs necessary to install such a system. Installation shall be completed within two years of the date the funds are received by the water system; the water system may apply to the State Board for an extension of the deadline. Following installation, if the State Board identifies a source of sufficient funds not excluded by Health and Safety Code section 116415 to cover the noncapital operations and maintenance costs for the period of a

year or more, the system shall fluoridate within three months of receiving the funds and shall continue fluoridating so long as such funds are received.

(b) Any public water system with 10,000 service connections or more that has a fluoridation system but ceased fluoridating prior to December 31, 1995 shall fluoridate the drinking water if its fluoridation system is determined to be capable of fluoridating the drinking water in compliance with Section 64433.2, based on a State Board review, and the State Board identifies a source of sufficient funds not excluded by Health and Safety Code section 116415 to cover the noncapital operations and maintenance costs for the period of a year or more. Such a system shall fluoridate within one month of receiving the funds and shall continue fluoridating so long as such funds are received.

(c) Any public water system required to install a fluoridation system pursuant to subsection (a) or required to fluoridate pursuant to subsection (b) shall annually submit an estimate of anticipated fluoridation operations and maintenance costs for the next fiscal year (July 1 through June 30) to the State Board by the January 1 preceding that fiscal year.

(d) Any public water system with 10,000 service connections or more that has naturally-occurring fluoride and cannot demonstrate that it maintains an average annual fluoride level that is equal to or greater than the low level specified in the temperature-appropriate "control range" in Table 64433.2–A shall be subject to subsections (a) and (b).

(e) Any public water system which achieves 10,000 service connections or more subsequent to July 1, 1996, that does not have a fluoridation system, or that has naturally-occurring fluoride and meets the criteria in subsection (d) shall provide an estimate to the State Board of capital and any associated costs necessary to install a fluoridation system within one year of achieving at least 10,000 service connections:

(f) Any public water system with 10,000 service connections or more shall be exempted from fluoridation in either of the following cases:

(1) The water system does not receive sufficient funds from a source identified by the State Board and not excluded by Health and Safety Code section 116415 to cover the capital and associated costs needed to install a fluoridation system; or

(2) The water system received sufficient capital funds from a source identified by the State Board and not excluded by Health and Safety Code section 116415 and subsequently installed a fluoridation system or the water system meets the criteria in subsection (b), and the water system did not receive sufficient funds from a source identified by the State Board and not excluded by Health and Safety Code section 116415 to cover the noncapital operation and maintenance costs to fluoridate. The water system shall be exempted for any fiscal year (July 1 through June 30) for which it does not receive the funds for noncapital operation and maintenance costs.

§ 64433.2. Optimal Fluoride Levels.

Any public water system that is fluoridating shall comply with the temperature-appropriate fluoride levels in Table 64433.2–A. The system shall determine, and submit to the State Board, its annual average of maximum daily air temperatures based on the five calendar years immediately preceding the current calendar year.

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Table 64433.2–A
Optimal Fluoride Levels

Annual average of maximum daily air temperatures, degrees		*Optimal fluoride level, mg/L*	*Control Range, mg/L*	
Fahrenheit	*Celsius*		*Low*	*High*
50.0 to 53.7	10.0 to 12.0	1.2	1.1	1.7
53.8 to 58.3	12.1 to 14.6	1.1	1.0	1.6
58.4 to 63.8	14.7 to 17.7	1.0	0.9	1.5
63.9 to 70.6	17.8 to 21.4	0.9	0.8	1.4
70.7 to 79.2	21.5 to 26.2	0.8	0.7	1.3
79.3 to 90.5	26.3 to 32.5	0.7	0.6	1.2

§ 64433.3. Monitoring and Compliance—Fluoride Levels.

(a) If a water system has a single fluoridation system which treats all the water distributed to consumers, the supplier shall collect a daily sample for fluoride analysis, pursuant to Section 64415(b), either in the distribution system or at the entry point. If a water system does not fluoridate all its water and/or has more than one fluoridation system, the supplier shall collect one sample daily in the distribution system and rotate the sample sites in order to be representative of the water throughout the distribution system according to a monitoring plan the State Board has determined to be representative. For water systems fluoridating as of January 1, 1997, the plan shall be submitted by July 1, 1998. For all others, the plan shall be submitted prior to initiating fluoridation treatment. A water system shall monitor only when it is operating its fluoridation system.

(b) If more than 20 percent of the daily fluoride samples collected in a month by a water system pursuant to subsection (a) fall outside the control range of optimal levels as determined by temperature for that system pursuant to Section 64433.2, the system shall be out of compliance with Section 64433.2.

(c) At least once a month, any water supplier with an operating fluoridation system shall divide one sample and have one portion analyzed for fluoride by water system personnel and the other portion analyzed pursuant to Section 64415(a).

(d) Any water system with an operating fluoridation system shall sample the raw source waters annually and analyze for fluoride pursuant to Section 64415(a); samples collected pursuant to Section 64432(c)(1) may be used toward satisfying this requirement. All raw source water samples collected under this subsection are subject to compliance with the fluoride MCL in Table 64431–A.

(e) If any sample result obtained pursuant to subsection (a) does not fall within the temperature-appropriate fluoride level control range in Table 64433.2–A, the water supplier shall take action as detailed in the water system's approved fluoridation system operations contingency plan as specified in section 64433.8.

§ 64433.5. Fluoridation System.

Each fluoridation system installed or modified after January 1, 1997, shall meet the following criteria, as a minimum:

(a) Operate only when a flow of water is detected. If the water system serves less than 200 service connections, a secondary flow-based control device shall be provided as back-up protection;

(b) Provide flow measuring and recording equipment for the fluoride addition;

(c) Provide design and reliability features to maintain the level of fluoride within the temperature-appropriate control range 95 per cent of the time;

(d) Provide for containment of spills; and

(e) Provide alarm features for fluoride chemical feed and fluoride spills.

§ 64433.7. Recordkeeping, Reporting, and Notification for Water Systems Fluoridating.

(a) By the tenth day of each month following the month being reported, each water supplier fluoridating its water supply shall send operational reports to the State Board which include the following:

(1) The fluoride compounds used and the calculated fluoride dose in mg/L;

(2) Information on any interruptions in the fluoridation treatment which may have occurred during the month including the duration of the interruptions, an explanation of causes, and what corrective actions were taken to insure that fluoridation treatment was resumed in a timely manner;

(3) The results of the daily monitoring for fluoride in the water distribution system, reported in terms of daily results, and ranges and the number of samples collected; and

(4) The results of monthly split sample(s) analyzed pursuant to Section 64433.3(c).

(b) For water systems that fluoridated the previous fiscal year (July 1 through June 30), the water supplier shall report the operations and maintenance costs for that year to the State Board by August 1.

(c) Whenever a water system initiates fluoridation, suspends fluoridation for more than ninety days, or reinitiates fluoridation after a suspension of more than ninety days, the water supplier shall notify the consumers, local health departments, pharmacists, dentists, and physicians in the area served by the water system, regarding the status of the fluoridation treatment. If a water system with more than one fluoridation system suspends the use of one or more of its fluoridation systems, but the level of fluoride being served to the consumers is in conformance with Table 64433.2–A, no notification shall be required.

(d) If a fluoride overfeed exceeding 10.0 mg/L occurs, the water system shall notify the State Board by the end of the business day of the occurrence or within 24 hours if the State Board office is closed.

(e) If the level of fluoride in the distribution system is found to be less than the control range in Table 64433.2–A in two or more samples in a month, the water system shall notify the State Board within three business days of the second occurrence. If the level of fluoride in the distribution system is found to be 0.1 mg/L or more above the control range up to 10.0 mg/L, the water supplier shall notify the State Board within three business days of the occurrence.

§ 64433.8. Fluoridation System Operations Contingency Plan.

(a) Water systems fluoridating as of July 1, 1996 shall submit a fluoridation system operations contingency plan by July 1, 1998. All other water systems shall submit the

plan at least three months before initiating fluoridation treatment. All fluoridating water systems shall operate in accordance with a fluoridation system operations contingency plan determined by the State Board to include the elements in subsection (b).

(b) A fluoridation system operation contingency plan shall include, but not be limited to, the following elements:

(1) Actions to be implemented by the water supplier in the event that the fluoride level in a distribution system sample is found to be less than the control range in Table 64433.2–A, 0.1 mg/L above the control range up to a fluoride level of 2.0 mg/L, from 2.1 to a level of 4.0 mg/L, from 4.1 to a level of 10.0 mg/L, or above a level of 10.0 mg/L.

(2) The procedure for shutting down the fluoridation equipment if there is a fluoride overfeed and the need to do so is identified by the State Board and/or the water supplier;

(3) The procedure for investigating the cause of an underfeed or overfeed;

(4) A list of water system, county health department, and State Board personnel with day and evening phone numbers to be notified by the end of the business day of the occurrence or within 24 hours if the State Board office is closed in the event of an overfeed exceeding 10.0 mg/L; and

(5) The procedure for notifying the public if instructed to do so by the State Board in the event of a fluoride underfeed extending for more than three months or a fluoride overfeed exceeding 10.0 mg/L.

§ 64434. Water System Priority Funding Schedule.

Public water systems with 10,000 service connections or more that are not fluoridating as of July 1, 1996, shall install fluoridation systems and initiate fluoridation according to the order established in Table 64434–A, as the water systems receive funds from sources identified by the State Board, pursuant to Health and Safety Code section 116415.

Table 64434–A
Water System Priority Funding Schedule

SYSTEM No.	*SYSTEM NAME*	*PRIORITY*
3710010	Helix Water District	1
5610017	Ventura, City of	2
4110013	Daly City, City of	3
3710006	Escondido, City of	4
4210011	Santa Maria, City of	5
3410009	Fair Oaks Water District	6
1910083	Manhattan Beach, City of	7
3710025	Sweetwater Authority	8
4210010	Santa Barbara, City of	9
0910001	El Dorado Irrigation District	10
3410006	Citrus Heights Water District	11
4410010	Santa Cruz, City of	12
3610039	San Bernardino, City of	13
3310009	Eastern Municipal Water District	14

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SYSTEM No.	*SYSTEM NAME*	*PRIORITY*
3710037	Padre Dam Municipal Water District	15
1910067	Los Angeles, City of	16
2810003	Napa, City of	17
3710020	San Diego, City of	18
3710034	Otay Water District	19
3310031	Riverside, City of	20
1910173	Whittier, City of	21
3410020	Sacramento, City of	22
1910139	California American Water Company - San Marino	23
3710021	San Dieguito Water District	24
3610024	Hesperia Water District	25
1910179	Burbank, City of	26
2710004	California American Water Company - Monterey	27
3310049	Western Municipal Water District	28
3010073	Moulton Niguel Water District	29
3010101	Santa Margarita Water District	30
1910239	Lakewood, City of	31
2110003	North Marin Water District	32
3010037	Yorba Linda Water District	33
3710015	Poway, City of	34
3110025	Placer County Water Agency	35
5010010	Modesto, City of	36
1910126	Pomona, City of	37
3410004	Carmichael Water District	38
1910043	Glendale, City of	39
3610018	Cucamonga Community Water District	40
3910011	Tracy, City of	41
1910234	Walnut Valley Water District	42
3910012	Stockton, City of	43
1910146	Santa Monica, City of	44
3710027	Vista Irrigation District	45
3010018	La Habra, City of	46
1910009	Valley County Water District	47
3310012	Elsinore Valley Municipal Water District	48
1910051	Inglewood, City of	49
3710005	Carlsbad Municipal Water District	50
4210004	Goleta Water District	51
1910213	Torrance, City of	52
1910152	South Gate, City of	53
1910155	Southern California Water Company - Southwest	54
1510017	Indian Wells Valley Water District	55
1910039	San Gabriel Valley Water Company - El Monte	56
1610003	Hanford, City of	57
3310037	Corona, City of	58
3010062	Garden Grove, City of	59
3610003	Apple Valley Ranchos Water Community	60
3610036	Chino Hills, City of	61

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SYSTEM No.	*SYSTEM NAME*	*PRIORITY*
3010064	Westminster, City of	62
4310011	San Jose Water Company	63
3610012	Chino, City of	64
3910004	Lodi, City of	65
5610007	Oxnard, City of	66
1910019	Cerritos, City of	67
1910205	Suburban Water Systems - San Jose Hills	68
1910059	Suburban Water Systems - La Mirada	69
1910092	Monterey Park, City of	70
1910174	Suburban Water Systems - Whittier	71
1910026	Compton, City of	72
1910124	Pasadena, City of	73
3310022	Lake Hemet Municipal Water District	74
1910142	Southern California Water Company - San Dimas	75
4510005	Redding, City of	76
3610037	Redlands, City of	77
3910005	Manteca, City of	78
3710014	Oceanside, City of	79
3610038	Rialto, City of	80
4310022	Great Oaks Water Company	81
4310014	Sunnyvale, City of	82
3310021	Jurupa Community Services District	83
3410001	Arcade- Town & County	84
3610052	Victor Valley Water District	85
3010023	Newport Beach, City of	86
3610064	East Valley Water District	87
1910225	Las Virgenes Municipal Water District	88
3710001	California American Water Company - Coronado	89
3610034	Ontario, City of	90
3910001	California Water Service Company - Stockton	91
1910033	Dominguez Water Agency	92
5410015	Tulare, City of	93
5710006	Woodland, City of	94
3710029	Olivenhain Municipal Water District	95
1910003	Arcadia, City of	96
1910008	Azusa Valley Water Company	97
4410011	Watsonville, City of	98
3010003	Buena Park, City of	99
4310005	Milpitas, City of	100
1910017	Santa Clarita Water Company	101
1910240	Valencia Water Company	102
3610004	West San Bernardino Water District	103
0910002	South Tahoe Public Utilities District	104
5610059	Southern California Water Company - Simi Valley	105
3010027	Orange, City of	106
5410010	Porterville, City of	107
4410017	Soquel Creek Water District	108

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SYSTEM No.	*SYSTEM NAME*	*PRIORITY*
4110023	San Bruno, City of	109
1910001	Alhambra, City of	110
3010022	Southern California Water Company-West Orange County	111
3010091	Los Alisos Water District	112
3610050	Upland, City of	113
3410024	Northridge Water District	114
1010003	Clovis, City of	115
3010004	Mesa Consolidated Water District	116
3610041	San Gabriel Valley Water Company - Fontana	117
3410010	Citizens Utilities Company of California - Suburban	118
3010038	Santa Ana, City of	119
3010092	Irvine Ranch Water District	120
1910211	Park Water Company - Bellflower	121
3010010	Fullerton, City of	122
4310007	Mountain View, City of	123
3010036	San Clemente, City of	124
3010079	El Toro Water District	125
5610020	Thousand Oaks, City of	126
3610029	Monte Vista Water District	127
1910004	Southern California Water Company - Artesia	128
4210016	Southern California Water Company - Orcutt	129
4110008	California Water Service Company - San Mateo	130
1310038	Rancho California Water District	131
3410017	Citizens Utilities Company of California - Parkway	132
1910024	Southern California Water Company - Claremont	133
1910044	Glendora, City of	134
3010001	Anaheim, City of	135
5710001	Davis, City of	136
1910134	California Water Service Company-Hermosa/Redondo	137
1010007	Fresno, City of	138
1910102	Palmdale Water District	139
4310012	Santa Clara, City of	140
2710010	California Water Service Company - Salinas	141
4910006	Petaluma, City of	142
1910036	California Water Service Company - East Los Angeles	143
3410013	Citizens Utilities Company of California - Lincoln Oaks	144
3310001	Coachella Valley Water District	145
5010019	Turlock, City of	146
5410016	California Water Service Company - Visalia	147
5610023	Waterworks District 8-Simi Valley	148
0410002	California Water Service Company - Chico	149
1910104	California Water Service Company - Palos Verdes	150
3410015	Southern California Water Company - Corodva	151
4910009	Santa Rosa, City of	152
1910194	Rowland Water District	153
1510003	California Water Service Company - Bakersfield	154

SYSTEM No.	*SYSTEM NAME*	*PRIORITY*
5610040	California American Water Company - Village District	155
3310005	Desert Water Agency	156
0110003	California Water Service Company - Livermore	157
3010046	Tustin, City of	158
4310001	California Water Service Company - Los Altos Suburban	159
4110007	California Water Service Company - San Carlos	160
1910070	Los Angeles, County Water Works District 4&34-Lancaster	161
1510031	Bakersfield, City of	162
4110009	California Water Service Company - South San Francisco	163
3010053	Huntington Beach, City of	164
4110006	California Water Service Company - Bear Gulch	165
1910034	Downey, City of	166
4110022	Redwood City	167

Article 5. Radioactivity

§ 64442. MCLs and Monitoring — Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium.

(a) Each community and nontransient-noncommunity water system (system) shall comply with the primary MCLs in Table 64442 in the drinking water supplied to the public and use the DLRs for reporting monitoring results:

Table 64442

Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)

Radionuclide	*MCL*	*DLR*
Radium-226		1 pCi/L
Radium–228	5 pCi/L (combined radium-226 & -228)	1 pCi/L
Gross Alpha particle activity (excluding radon and uranium)	15 pCi/L	3 pCi/L
Uranium	20 pCi/L	1 pCi/L

(b) Each system shall monitor to determine compliance with the MCLs in table 64442, as follows:

(1) Monitor at each water source, or every entry point to the distribution system that is representative of all sources being used under normal operating conditions; conduct all monitoring at the same sample site(s) unless a change is approved by the State Board, based on a review of the system and its historical water quality data;

(2) For quarterly monitoring, monitor during the same month (first, second or third) of each quarter during each quarter monitored;

(3) By December 31, 2007, complete initial monitoring that consists of four consecutive quarterly samples at each sampling site for each radionuclide in table 64442, except that nontransient-noncommunity water systems shall not be required to monitor radium-228 as a separate analyte, but shall monitor for compliance with the combined radium MCL using the analytical method described in Prescribed Procedures for Measurement of Radioactivity in Drinking Water, Section 6, Alpha-emitting Radium Isotopes in Drinking Water, Method 903.0 (EPA/600/4-80-032, August 1980):

(A) Data collected for a sampling site between January 1, 2001, and December 31, 2004, may be used to satisfy the initial monitoring requirement, subject to the State Board's approval based on whether the analytical methods, DLRs, sampling sites, and the frequency of monitoring used were consistent with this article.

(B) For gross alpha particle activity, uranium, radium-226 and radium-228, the State Board may waive the final two quarters of initial monitoring at a sampling site if the results from the previous two quarters are below the DLR(s) and the sources are not known to be vulnerable to contamination.

(c) Any new system or new source for an existing system shall begin monitoring pursuant to Subsection (b) within the first quarter after initiating water service to the public.

(d) After initial monitoring, each system shall monitor for each radionuclide at each sampling site at a frequency determined by the monitoring result(s) [single sample result or average of sample results if more than one sample collected] from the most recent compliance period as follows:

(1) For nontransient-noncommunity water systems, the results for the total radium analyses shall be averaged.

(2) For community water systems, the results of radium-226 and radium-228 analyses shall be added and the average calculated.

(3) The values used for the radionuclide MCLs and DLRs shall be as specified in Table 64442.

(4) If the single sample result or average is:

A. Below the DLR, the system shall collect and analyze at least one sample every nine years (3 compliance periods).

B. At or above the DLR, but at or below ½ the MCL, the system shall collect and analyze at least one sample every six years.

C. Above ½ the MCL, but not above the MCL, the system shall collect and analyze at least one sample every three years.

(e) A system that monitors quarterly may composite up to four consecutive samples from a single sampling site if analysis is done within a year of the first sample's collection. If the result of the composited sample is greater than ½ the MCL, at least one additional quarterly sample shall be analyzed to evaluate the range and trend of results over time before allowing the system to reduce the monitoring frequency.

(f) A gross alpha particle activity measurement may be substituted for other measurements by adding the 95% confidence interval (1.65σ, where σ is the standard deviation of the net counting rate of the sample) to it; and if,

(1) For uranium and radium measurements (after initial radium-228 monitoring has been completed), the gross alpha measurement does not exceed 5 pCi/L; or

(2) For radium measurements (after initial radium-228 monitoring has been completed), the result obtained from subtracting the uranium measurement from the gross alpha measurement does not exceed 5 pCi/L.

(g) If any sample result is greater than an MCL:

(1) For a system monitoring less than quarterly, quarterly samples shall be collected and analyzed to determine compliance, pursuant to subsection (h);

(2) For a system that already has four consecutive quarterly results, compliance shall be determined pursuant to subsection (h).

(3) The system shall monitor quarterly until the results of four consecutive quarterly sample results do not exceed the MCL.

(h) A system with one or more sample results greater than an MCL shall determine compliance with the MCL as follows:

(1) At each sampling site, based on the analytical results for that site. Any confirmation sample result shall be averaged with the initial result.

(2) Using all monitoring results collected under this section during the previous 12 months, even if more than the minimum required number of samples was collected.

(3) By a running annual average of four consecutive quarters of sampling results. Averages shall be rounded to the same number of significant figures as the MCL for which compliance is being determined.

(A) If any sample result will cause the annual average at any sample site to exceed the MCL, the system shall be out of compliance immediately upon receiving the result;

(B) If a system has not analyzed the required number of samples, compliance shall be determined by the average of the samples collected at the site during the most recent 12 months; and

(C) If a sample result is less than the DLR in table 64442, zero shall be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226, total radium, and/or uranium. In that case, if the gross alpha particle activity result is less than the DLR, ½ the DLR shall be used to calculate the annual average.

(4) If compositing is allowed at a sampling site, by the results of a composite of four consecutive quarterly samples.

(5) If the system can provide documentation that a sample was subject to sampling or analytical errors, the State Board may invalidate the result based on its review of the documentation, the sampling result, and the historical sampling data.

(6) Each system shall ensure that the laboratory analyzing its samples collected for compliance with this article calculates and reports the sample-specific Minimum Detectable Activity at the 95% confidence level (MDA_{95}) along with the sample results. The MDA_{95} shall not exceed the DLR and shall be calculated as described in ANSI N42.23 Measurement and Associated Instrumentation Quality Assurance for Radiobioassay Laboratories, Appendix A.7.6 (September 10, 1995).

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§ 64443. MCLs and Monitoring — Beta Particle and Photon Radioactivity.

(a) Each community and nontransient-noncommunity water system (system) shall comply with the primary MCLs in table 64443 and use the DLRs for reporting monitoring results:

Table 64443

Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)

Radionuclide	*MCL*	*DLR*
Beta/photon emitters	4 millirem/year annual dose equivalent to the total body or any internal organ	Gross Beta particle activity: 4 pCi/L
Strontium-90	8 pCi/L (= 4 millirem/yr dose to bone marrow)	2 pCi/L
Tritium	20,000 pCi/L (= 4 millirem/yr dose to total body)	1,000 pCi/L

(b) Each system designated by the State Board as vulnerable to contamination by nuclear facilities and/or a determination of vulnerability by a source water assessment, as defined in section 64401.57, shall monitor to determine compliance with the MCLs in Table 64443, as follows:

(1) Beginning within one quarter after being notified by the State Board that the system is vulnerable, quarterly for beta/photon emitters and annually for tritium and strontium-90 at each water source, or every entry point to the distribution system that is representative of all sources being used under normal operating conditions, and shall conduct all monitoring at the same sample site(s) unless a change is approved by the State Board, based on a review of the system and its historical water quality data;

(2) For quarterly monitoring, during the same month (first, second or third) of each quarter during each quarter monitored; and

(3) If the gross beta particle activity minus the naturally-occurring potassium-40 beta particle activity at a sampling site has a running annual average less than or equal to 50 pCi/L (screening level), reduce monitoring to a single sample for beta/photon emitters, tritium and strontium-90 once every three years (compliance monitoring period).

(c) Each system designated by the State Board as utilizing waters contaminated by effluents from nuclear facilities on the basis of analytical data and/or a Source Water Assessment, shall:

(1) Beginning within one quarter after being notified by the State Board of the above designation, monitor on an ongoing basis pursuant to subparagraphs (A) through (C) at each sampling site:

(A) For beta/photon emitters, quarterly by analyzing three monthly samples and averaging the results or by analyzing a composite of three monthly samples;

(B) For iodine-131, quarterly by analyzing a composite of five consecutive daily samples, unless the State Board has directed the system to do more frequent monitoring based on a detection of iodine-131 in the sampled water; and

(C) For strontium-90 and tritium, annually by analyzing four quarterly samples and averaging the results or by analyzing a composite of four quarterly samples.

(2) If the gross beta particle activity minus the naturally-occurring potassium-40 beta particle activity at a sampling site has a running annual average (computed quarterly) less than or equal to 15 pCi/L (screening level), reduce the frequency of monitoring to a single sample for beta/photon emitters, iodine-131, strontium-90 and tritium once every three years (compliance monitoring period).

(d) If the gross beta particle activity minus the naturally-occurring potassium-40 beta particle activity exceeds a system's screening level pursuant to Subsection (b)(3) or (c)(2):

(1) The sample shall be analyzed to identify the primary radionuclides present and the doses shall be calculated and summed to determine compliance with the MCL for beta particle/photon radioactivity; and

(2) Except for strontium-90 and tritium for which the MCLs provide the average annual concentrations assumed to produce a total body or organ dose equivalent to 4 millirem/year, the concentration of manmade radionuclides shall be calculated on the basis of 2 liters per day drinking water intake using the 168 hour data list in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," NBS (National Bureau of Standards) Handbook 69 as amended August 1963, U.S. Department of Commerce. (See Title 40, Code of Federal Regulations, section 141.66(d)(2).)

(e) If a system analyzes for naturally-occurring potassium-40 beta particle activity from the same or equivalent samples used for the gross beta particle activity analysis, the potassium-40 beta particle activity shall be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82 pCi/mg.

(f) A system required to monitor under this section may use environmental surveillance data (collected by the nuclear facility to detect any radionuclide contamination) in lieu of monitoring, subject to the State Board's determination that the data is applicable to the system based on a review of the data and the hydrogeology of the area. In the event that there is a release of radioactivity or radioactive contaminants from the nuclear facility, a system using environmental surveillance data shall begin the monitoring in paragraph (b)(1) or (c)(1)(A) through (C), whichever is most applicable.

(g) If a sample result is greater than an MCL:

(1) Compliance shall be determined as follows:

(A) At each sampling site, based on the analytical results for that site. Any confirmation sample result shall be averaged with the initial result.

(B) Using all monitoring results collected under this article during the previous 12 months, even if more than the minimum required number of samples was collected.

(C) By a running annual average of four consecutive quarters of sampling results where quarterly monitoring is required, or by an annual sample when applicable for tritium and strontium-90. Averages shall be rounded to the same number of significant figures as the MCL for which compliance is being determined.

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1. If any sample result will cause the annual average at any sample site to exceed the MCL, the system shall be out of compliance immediately after being notified of the result;

2. If a system has not analyzed the required number of samples, compliance shall be determined by the average of the samples collected at the site during the most recent 12 months; and

3. If a sample result is less than the DLR in 64443, zero shall be used to calculate the annual average.

(D) If the system can provide documentation that a sample was subject to sampling or analytical errors, the State Board may invalidate the result based on its review of the documentation, the sampling result, and the historical sampling data.

(E) Each system shall ensure that the laboratory analyzing its samples collected for compliance with this article calculates and reports the sample-specific Minimum Detectable Activity at the 95% confidence level (MDA_{95}) along with the sample results. The MDA_{95} shall not exceed the DLR and is calculated as described in ANSI N42.23 Measurement and Associated Instrumentation Quality Assurance for Radiobioassay Laboratories, Appendix A.7.6 (September 10, 1995).

(2) If a sample has a gross beta/photon radioactivity level greater than the MCL:

(A) A system shall monitor monthly beginning the month after receiving a result greater than the MCL and continue monthly monitoring until an average of three consecutive monthly sample results does not exceed the MCL;

(B) The system shall then monitor quarterly until the average of four consecutive quarterly sample results does not exceed the MCL; and

(C) Subsequently, the system shall conduct the monitoring in paragraph (b)(1) or (c)(1)(A) through (C), whichever is most applicable.

Article 5.5. Primary Standards—Organic Chemicals

§ 64444. Maximum Contaminant Levels—Organic Chemicals.

The MCLs for the primary drinking water chemicals shown in table 64444–A shall not be exceeded in the water supplied to the public.

Table 64444–A

Maximum Contaminant Levels Organic Chemicals

Chemical	*Maximum Contaminant Level, mg/L*
(a) Volatile Organic Chemicals (VOCs)	
Benzene	0.001
Carbon Tetrachloride	0.0005
1,2 Dichlorobenzene	0.6
1,4 Dichlorobenzene	0.005

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1,1-Dichloroethane	0.005
1,2-Dichloroethane	0.0005
1,1-Dichloroethylene	0.006
cis-1,2-Dichloroethylene	0.006
trans-1,2-Dichloroethylene	0.01
Dichloromethane	0.005
1,2-Dichloropropane	0.005
1,3-Dichloropropene	0.0005
Ethylbenzene	0.3
Methyl-*tert*-butyl ether	0.013
Monochlorobenzene	0.07
Styrene	0.1
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene	0.005
Toluene	0.15
1,2,4-Trichlorobenzene	0.005
1,1,1-Trichloroethane	0.200
1,1,2-Trichloroethane	0.005
Trichloroethylene	0.005
Trichlorofluoromethane	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2
Vinyl Chloride	0.0005
Xylenes	1.750*

(b) Synthetic Organic Chemicals (SOCs)

Alachlor	0.002
Atrazine	0.001
Bentazon	0.018
Benzo(a)pyrene	0.0002
Carbofuran	0.018
Chlordane	0.0001
2,4-D	0.07
Dalapon	0.2
Dibromochloropropane	0.0002
Di(2-ethylhexyl)adipate	0.4
Di(2-ethylhexyl)phthalate	0.004
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene Dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.00001
Heptachlor Epoxide	0.00001

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Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.03
Molinate	0.02
Oxamyl	0.05
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Simazine	0.004
Thiobencarb	0.07
Toxaphene	0.003
1,2,3-Trichloropropane	0.000005
2,3,7,8-TCDD (Dioxin)	$3x10^{-8}$
2,4,5-TP (Silvex)	0.05

*MCL is for either a single isomer or the sum of the isomers.

§ 64445. Initial Sampling—Organic Chemicals.

(a) Each community and nontransient-noncommunity water system shall collect four quarterly samples during the year designated by the State Board of each compliance period beginning with the compliance period starting January 1, 1993, from each water source at a site prior to any treatment and test for all applicable organic chemicals listed in table 64444–A. The State Board will designate the year based on historical monitoring frequency and laboratory capacity. For surface sources, the samples shall be taken at each water intake. For groundwater sources, the samples shall be taken at each well head. Where multiple intakes or wells draw from the same water supply, the State Board will consider sampling of representative sources as a means of complying with this section. Selection of representative sources shall be based on evidence which includes a hydrogeological survey and sampling results. Wells shall be allowed to flow for a minimum of 15 minutes before sampling to insure that the samples reflect the water quality of the source. In place of water source samples, a supplier may collect samples at sites located at the entry points to the distribution system. The samples shall be representative of each source after treatment. The system shall collect each sample at the same sampling site, unless a change is approved by the State Board.

(b) For any organic chemical added to table 64444–A, the water system shall initiate the quarterly monitoring for that chemical in January of the calendar year after the effective date of the MCL.

(c) A water system may request approval from the State Board to composite samples from up to five sampling sites, provided that the number of the sites to be composited is less than the ratio of the MCL to the DLR in Section 64445.1. Approval will be based on a review of three years of historical data, well construction and aquifer information for groundwater, and intake location, similarity of sources, and watershed characteristics for surface water. Compositing shall be done in the laboratory and analyses shall be conducted within 14 days of sample collection.

(1) Systems serving more than 3,300 persons shall composite only from sampling sites within a single system. Systems serving 3,300 persons or less may composite among different systems up to the 5-sample limit.

(2) If any organic chemical is detected in the composite sample, a follow-up sample shall be analyzed within 14 days from each sampling site included in the composite for the contaminants which were detected. The water supplier shall report the results to the State Board within 14 days of the follow-up sample collection. If available, duplicates of the original sample taken from each sampling site used in the composite may be used instead of resampling.

(d) A water system may apply to the State Board for a monitoring waiver for one or more of the organic chemicals on table 64444–A in accordance with the following:

(1) A source may be eligible for a waiver if it can be documented that the chemical has not been previously used, manufactured, transported, stored, or disposed of within the watershed or zone of influence and therefore, that the source can be designated nonvulnerable.

(2) If previous use of the chemical locally is unknown or the chemical is known to have been used previously and the source cannot be designated nonvulnerable pursuant to Paragraph (d)(1), it may still be eligible for a waiver based on a review related to susceptibility to contamination. The application to the State Board for a waiver based on susceptibility shall include the following:

(A) previous monitoring results;

(B) user population characteristics;

(C) proximity to sources of contamination;

(D) surrounding land uses;

(E) degree of protection of the water source;

(F) environmental persistence and transport of the chemical in water, soil and air;

(G) elevated nitrate levels at the water supply source; and

(H) historical system operation and maintenance data including previous State Board inspection results.

(3) To apply for a monitoring waiver for VOCs, the water system shall have completed the initial four quarters of monitoring pursuant to subsection (a) or three consecutive years of monitoring with no VOCs detected. If granted a waiver for VOC monitoring, a system using groundwater shall collect a minimum of one sample from every sampling site every six years and a system using surface water shall not be required to monitor for the term of the waiver. The term of a VOC waiver shall not exceed three years.

(4) To obtain a monitoring waiver for one or more of the SOCs, the water system may apply before doing the initial round of monitoring or shall have completed three consecutive years of annual monitoring with no detection of the SOC(s) listed. If the system is granted a waiver for monitoring for one or more SOC(s), no monitoring for the waived SOC(s) shall be required for the term of the waiver, which shall not exceed three years.

(e) For water sources designated by a water supplier as standby sources, the water supplier shall sample each source for any organic chemical added to table 64444–A

once within the three-year period beginning in January of the calendar year after the effective date of the MCL.

(f) Water quality data collected prior to January 1, 1988, for VOCs, or January 1, 1990, for SOCs, and/or data collected in a manner inconsistent with this section shall not be used in the determination of compliance with the monitoring requirements for organic chemicals.

(g) MTBE data (i.e., a single sample) collected in a manner consistent with this section after January 1, 1998 in which no MTBE is detected, along with a designation of nonvulnerability pursuant to subsection (d), may be used to satisfy the initial monitoring requirements in subsection (a). If the requirements are satisfied in this way by a water system, the system shall begin annual monitoring pursuant to section 64445.1(b)(1).

(h) Water quality data collected in compliance with the monitoring requirements of this section by a wholesaler agency providing water to a public water system shall be acceptable for use by that system for compliance with the monitoring requirements of this section.

(i) Results obtained from groundwater monitoring performed for an organic chemical in accordance with this section and not more than two calendar years prior to the effective date of a regulation establishing the MCL for that organic chemical may be substituted to partially satisfy the initial monitoring requirements required by this section for that organic chemical. Requests to substitute groundwater monitoring results shall be made in accordance with the following:

1. Requests shall be made in writing by the water system to the State Board; and

2. If the State Board approves the request then results from a given calendar quarter will only be eligible to substitute for a single required initial monitoring result during that same quarter of initial monitoring. (e.g. the second quarter of 2016 may be substituted for the second quarter of 2018).

3. No more than three of the four quarterly samples as required by section 64445(a) or (b) may be substituted.

§ 64445.1. Repeat Monitoring and Compliance—Organic Chemicals.

(a) For the purposes of this article, detection shall be defined by the detection limits for purposes of reporting (DLRs) in table 64445.1–A:

Table 64445.1–A

Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals

Chemical	*Detection Limit for Purposes of Reporting (DLR)(mg/L)*
(a) All VOCs, except as listed	0.0005
Methyl-*tert*-butyl ether	0.003
Trichlorofluoromethane	0.005
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.01

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(b) SOCs

Alachlor	0.001
Atrazine	0.0005
Bentazon	0.002
Benzo(a)pyrene	0.0001
Carbofuran	0.005
Chlordane	0.0001
2,4-D	0.01
Dalapon	0.01
Dibromochloropropane (DBCP)	0.00001
Di(2-ethylhexyl)adipate	0.005
Di(2-ethylhexyl)phthalate	0.003
Dinoseb	0.002
Diquat	0.004
Endothall	0.045
Endrin	0.0001
Ethylene dibromide (EDB)	0.00002
Glyphosate	0.025
Heptachlor	0.00001
Heptachlor epoxide	0.00001
Hexachlorobenzene	0.0005
Hexachlorocyclopentadiene	0.001
Lindane	0.0002
Methoxychlor	0.01
Molinate	0.002
Oxamyl	0.02
Pentachlorophenol	0.0002
Picloram	0.001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0005
Simazine	0.001
Thiobencarb	0.001
Toxaphene	0.001
1,2,3-Trichloropropane	0.000005
2,3,7,8-TCDD (Dioxin)	$5x10^{-9}$
2,4,5-TP (Silvex)	0.001

(b) When organic chemicals are not detected pursuant to table 64445.1–A.

(1) A water system which has not detected any of the VOCs on table 64444–A during the initial four quarters of monitoring, shall collect and analyze one sample annually. After a minimum of three years of annual sampling with no detection of a VOC in table 64444–A, a system using groundwater may reduce the monitoring frequency to one sample during each compliance period. A system using surface water shall continue monitoring annually.

(2) A system serving more than 3,300 persons which has not detected an SOC on table 64444–A during the initial four quarters of monitoring shall collect a minimum of two quarterly samples for that SOC in one year during the year designated by the State

Board of each subsequent compliance period. The year will be designated on the basis of historical monitoring frequency and laboratory capacity.

(3) A system serving 3,300 persons or less which has not detected an SOC on table 64444–A during the initial four quarters of monitoring shall collect a minimum of one sample for that SOC during the year designated by the State Board of each subsequent compliance period. The year will be designated on the basis of historical monitoring frequency and laboratory capacity.

(c) When organic chemicals are detected pursuant to table 64445.1–A.

(1) Prior to proceeding with the requirements of paragraphs (2) through (7), the water supplier may first confirm the analytical result, as follows: Within seven days from the notification of an initial finding from a laboratory reporting the presence of one or more organic chemicals in a water sample, the water supplier shall collect one or two additional sample(s) to confirm the initial finding. Confirmation of the initial finding shall be shown by the presence of the organic chemical in either the first or second additional sample, and the detected level of the contaminant for compliance purposes shall be the average of the initial and confirmation sample(s). The initial finding shall be disregarded if two additional samples do not show the presence of the organic chemical.

(2) If one or both of the related organic chemicals heptachlor and heptachlor epoxide are detected, subsequent monitoring shall analyze for both chemicals until there has been no detection of either chemical for one compliance period.

(3) A groundwater sampling site at which one or more of the following chemicals has been detected shall be monitored quarterly for vinyl chloride: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene. If vinyl chloride is not detected in the first quarterly sample, the sampling site shall be monitored once for vinyl chloride during each compliance period.

(4) If the detected level of organic chemicals for any sampling site does not exceed any shown in table 64444–A, the water source shall be resampled every three months and the samples analyzed for the detected chemicals. After one year of sampling an approved surface water system or two quarters of sampling a groundwater system, the State Board will consider allowing the water supplier to reduce the sampling to once per year upon request, based on a review of previous sampling data. Systems shall monitor during the quarter(s) which previously yielded the highest analytical results.

(5) If the detected level of an organic chemical for any sampling site exceeds that listed in table 64444–A, the water supplier shall report this information to the State Board within 48 hours of receipt of the result. Unless use of the contaminated source is discontinued, the water supplier shall resample the contaminated source and compliance shall be determined as follows:

(A) Water systems serving more than 3,300 persons shall sample monthly for six months and shall submit the results to the State Board as specified in section 64469. If the average concentration of the initial finding, confirmation sample(s), and six subsequent monthly samples does not exceed the MCL shown in table 64444–A the water supplier may reduce the sampling frequency to once every three months. If the running annual average or the average concentration of the initial finding, confirmation

sample(s), and six subsequent monthly samples exceeds the MCL shown in table 64444–A, the water system shall be deemed to be in violation of section 64444.

(B) Water systems serving 3,300 persons or less shall sample quarterly for a minimum of one year and shall submit the results to the State Board as specified in section 64469. If the running annual average concentration does not exceed the MCL in table 64444–A, the water supplier may reduce the sampling frequency to once every year during the quarter that previously yielded the highest analytical result. Quarterly monitoring shall resume if any reduced frequency sample result exceeds the MCL. If the running annual average concentration exceeds the MCL in table 64444–A, the water system shall be deemed to be in violation of section 64444.

(C) If any sample would cause the running annual average to exceed the MCL, the water system is immediately in violation. If a system takes more than one sample in a quarter, the average of all the results for that quarter shall be used when calculating the running annual average. If a system fails to complete four consecutive quarters of monitoring, the running annual average shall be based on an average of the available data.

(6) If any resample, other than those taken in accordance with paragraph (5), of a water sampling site shows that the concentration of any organic chemical exceeds a MCL shown in table 64444–A, the water supplier shall proceed in accordance with paragraphs (1) and (4), or paragraph (5).

(7) If an organic chemical is detected and the concentration exceeds ten times the MCL, the water supplier shall notify the State Board within 48 hours of the receipt of the results and the contaminated site shall be resampled within 48 hours to confirm the result. The water supplier shall notify the State Board of the result of the confirmation sample(s) within 24 hours of the receipt of the confirmation result(s).

(A) If the average concentration of the original and confirmation sample(s) is less than or equal to ten times the MCL, the water supplier shall proceed in accordance with paragraph (5).

(B) If the average concentration of the original and confirmation samples exceeds ten times the MCL, use of the contaminated water source shall immediately be discontinued, if directed by the State Board. Such a water source shall not be returned to service without written approval from the State Board.

§ 64445.2. Sampling of Treated Water Sources.

(a) Each water supplier utilizing treatment to comply with any MCL for an organic chemical listed in table 64444–A shall collect monthly samples of the treated water at a site prior to the distribution system. If the treated water exceeds the MCL, the water supplier shall resample the treated water to confirm the result and report the result to the State Board within 48 hours of the confirmation.

(b) The State Board will consider requiring more frequent monitoring based on an evaluation of (1) the treatment process used, (2) the treatment effectiveness and efficiency, and (3) the concentration of the organic chemical in the water source.

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Article 12. Best Available Technologies (BAT)

§ 64447. Best Available Technologies (BAT)—Microbiological Contaminants.

The technologies identified by the State Board as the best available technology (for a public water system serving more than 10,000 persons), affordable technology (for a public water system serving 10,000 or fewer persons), treatment techniques, or other means available for achieving compliance with the *E. coli* MCL are as follows:

(a) Protection of wells from fecal coliform contamination by appropriate placement and construction;

(b) Maintenance of a disinfectant residual throughout the distribution system;

(c) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross connection control, and continual maintenance of positive water pressure in all parts of the distribution system;

(d) Filtration and/or disinfection of approved surface water, in compliance with Section 64650, or disinfection of groundwater, in compliance with Section 64430, using strong oxidants such as chlorine, chlorine dioxide, or ozone; and

(e) For a system using groundwater, compliance with the groundwater portion of a Drinking Water Source Assessment and Protection Program, conducted according to the Drinking Water Source Assessment Protection Program, California Department of Health Services, January 2000, which is incorporated by reference.

§ 64447.2. Best Available Technologies (BATs)—Inorganic Chemicals.

The technologies listed in Table 64447.2–A are the best available technology, treatment techniques, or other means available for achieving compliance with the MCLs in Table 64431–A for inorganic chemicals.

Table 64447.2–A
Best Available Technologies (BAT) Inorganic Chemicals

Chemical	*Best Available Technologies (BATs)*
Aluminum	10
Antimony	2, 7
Arsenic	1, 2, 5, 6, 7, 9, 13
Asbestos	2, 3, 8
Barium	5, 6, 7, 9
Beryllium	1, 2, 5, 6, 7
Cadmium	2, 5, 6, 7
Chromium (hexavalent)	5, 7, 14
Chromium (total)	2, 5, 6[a], 7

Cyanide	5, 7, 11
Fluoride	1
Mercury	2[b], 4, 6[b], 7[b]
Nickel	5, 6, 7
Nitrate	5, 7, 9
Nitrite	5, 7
Perchlorate	5,12
Selenium	1, 2[c], 6, 7, 9
Thallium	1, 5

[a] BAT for chromium III (trivalent chromium) only.
[b] BAT only if influent mercury concentrations <10 µg/L.
[c] BAT for selenium IV only.

Key to BATs in Table 64447.2–A:
1= Activated Alumina
2= Coagulation/Filtration (not BAT for systems < 500 service connections)
3= Direct and Diatomite Filtration
4= Granular Activated Carbon
5= Ion Exchange
6= Lime Softening (not BAT for systems < 500 service connections)
7= Reverse Osmosis
8= Corrosion Control
9= Electrodialysis
10= Optimizing treatment and reducing aluminum added
11= Chlorine oxidation
12= Biological fluidized bed reactor
13= Oxidation/Filtration
14= Reduction/Coagulation/Filtration

§ 64447.3. Best Available Technologies (BAT) — Radionuclides.

The technologies listed in tables 64447.3–A, B and C are the best available technology, treatment technologies, or other means available for achieving compliance with the MCLs for radionuclides in tables 64442 and 64443.

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Table 64447.3–A
Best Available Technologies (BATs) Radionuclides

Radionuclide	*Best Available Technology*
Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening
Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration
Gross alpha particle activity	Reverse osmosis
Beta particle and photon radioactivity	Ion exchange, reverse osmosis

Table 64447.3–B
Best Available Technologies (BATs) and Limitations for Small Water Systems Radionuclides

Unit Technologies	*Limitations (see footnotes)*	*Operator Skill Level Required*	*Raw Water Quality Range and Considerations*
1. Ion exchange	(a)	Intermediate	All ground waters; competing anion concentrations may affect regeneration frequency
2. Point of use, ion exchange	(b)	Basic	All ground waters; competing anion concentrations may affect regeneration frequency
3. Reverse osmosis	(c)	Advanced	Surface waters usually require pre-filtration
4. Point of use, reverse osmosis	(b)	Basic	Surface waters usually require pre-filtration
5. Lime softening	(d)	Advanced	All waters
6. Green sand filtration	(e)	Basic	All ground waters; competing anion concentrations may affect regeneration frequency
7. Co-precipitation with barium sulfate	(f)	Intermediate to advanced	Ground waters with suitable quality
8. Electrodialysis/electrodialysis reversal	(g)	Basic to intermediate	All ground waters
9. Pre-formed hydrous manganese oxide filtration	(h)	Intermediate	All ground waters

10. Activated alumina	(a), (i)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency
11. Enhanced coagulation/filtration	(j)	Advanced	Can treat a wide range of water qualities

Limitation Footnotes:

[a] The regeneration solution contains high concentrations of the contaminant ions, which could result in disposal issues.

[b] When point of use devices are used for compliance, programs for long-term operation, maintenance, and monitoring shall be provided by systems to ensure proper performance.

[c] Reject water disposal may be an issue.

[d] The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small systems.

[e] Removal efficiencies can vary depending on water quality.

[f] Since the process requires static mixing, detention basins, and filtration, this technology is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.

[g] Applies to ionized radionuclides only.

[h] This technology is most applicable to small systems with filtration already in place.

[i] Chemical handling during regeneration and pH adjustment may be too difficult for small systems without an operator trained in these procedures.

[j] This would involve modification to a coagulation/filtration process already in place.

Table 64447.3–C
Best Available Technologies (BATs) for Small Water Systems by System Size
Radionuclides

	Compliance Technologies for System Size Categories Based On Population Served		
	25–500	*501–3,300*	*3,301–10,000*
Contaminant	*Unit Technologies (Numbers Correspond to Table 64447.3–B)*		
Combined radium-226 and radium-228	1, 2 ,3, 4, 5, 6, 7, 8, 9	1, 2 ,3, 4, 5, 6, 7, 8, 9	1, 2 ,3, 4, 5, 6, 7, 8, 9
Gross alpha particle activity	3, 4	3, 4	3, 4
Beta particle activity and photon radioactivity	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
Uranium	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11	1, 2, 3, 4, 5, 10, 11

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§ 64447.4. Best Available Technologies (BATs)—Organic Chemicals.

The technologies listed in table 64447.4–A are the best available technology, treatment technologies, or other means available for achieving compliance with the MCLs in table 64444–A for organic chemicals.

Table 64447.4–A
Best Available Technologies (BATs) Organic Chemicals

Chemical	*Best Available Technologies*		
	Granular Activated Carbon	*Packed Tower Aeration*	*Oxidation*
(a) Volatile Organic Chemicals (VOCs)			
Benzene	X	X	
Carbon Tetrachloride	X	X	
1,2-Dichlorobenzene	X	X	
1,4-Dichlorobenzene	X	X	
1,1-Dichloroethane	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	
1,2-Dichloropropane	X	X	
1,3-Dichloropropene	X	X	
Ethylbenzene	X	X	
Methyl-*tert*-butyl ether		X	
Monochlorobenzene	X	X	
Styrene	X	X	
1,1,2,2-Tetrachloroethane	X	X	
Tetrachloroethylene	X	X	
Toluene	X	X	
1,2,4-Trichlorobenzene	X	X	
1,1,1-Trichloroethane	X	X	
1,1,2-Trichloroethane	X	X	
Trichlorofluoromethane	X	X	
Trichlorotrifluoroethane	X	X	
Trichloroethylene	X	X	
Vinyl Chloride		X	
Xylenes	X	X	
(b) Synthetic Organic Chemicals (SOCs)			
Alachlor	X	X	
Atrazine	X		
Bentazon		X	
Benzo(a)pyrene	X		
Carbofuran	X		
Chlordane	X		
2,4-D	X		

Chemical	*Best Available Technologies*		
	Granular Activated Carbon	*Packed Tower Aeration*	*Oxidation*
Dalapon	X		
Di(2-ethylhexyl)adipate	X	X	
Dinoseb	X		
Diquat	X		
1,2-Dibromo-3-chloropropane	X	X	
Di(2-ethylhexyl)phthalate	X		
Endothall	X		
Endrin	X		
Ethylene Dibromide	X	X	
Glyphosate			X
Heptachlor	X		
Heptachlor epoxide	X		
Hexachlorobenzene	X		
Hexachlorocyclopentadiene	X	X	
Lindane	X		
Methoxychlor	X		
Molinate	X		
Oxamyl	X		
Picloram	X		
Pentachlorophenol	X		
Polychlorinated Biphenyls	X		
Simazine	X		
Thiobencarb	X		
Toxaphene	X	X	
1,2,3-Trichloropropane	X		
2,3,7,8-TCDD (Dioxin)	X		
2,4,5-TP (Silvex)	X		

Article 14. Treatment Techniques

§ 64448. Treatment Technique Requirements.

(a) A public water system which uses acrylamide and/or epichlorohydrin in drinking water treatment shall certify annually in writing to the State Board that the combination of dose and monomer does not exceed the following levels:

(1) Acrylamide.	0.05% monomer in polyacrylamide dosed at 1 mg/L, or equivalent.
(2) Epichlorohydrin.	0.01% residual of epichlorohydrin dosed at 20 mg/L, or equivalent.

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Article 16. Secondary Drinking Water Standards

§ 64449. Secondary Maximum Contaminant Levels and Compliance.

(a) The secondary MCLs shown in Tables 64449–A and 64449–B shall not be exceeded in the water supplied to the public by community water systems.

Table 64449–A
Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"

Constituents	*Maximum Contaminant Levels/Units*
Aluminum	0.2 mg/L
Color	15 Units
Copper	1.0 mg/L
Foaming Agents (MBAS)	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Methyl-*tert*-butyl ether (MTBE)	0.005 mg/L
Odor—Threshold	3 Units
Silver	0.1 mg/L
Thiobencarb	0.001 mg/L
Turbidity	5 Units
Zinc	5.0 mg/L

Table 64449–B
Secondary Maximum Contaminant Levels — "Consumer Acceptance Contaminant Level Ranges"

	Maximum Contaminant Level Ranges		
Constituent, Units	*Recommended*	*Upper*	*Short Term*
Total Dissolved Solids, mg/L	500	1,000	1,500
or			
Specific Conductance, µS/cm	900	1,600	2,200
Chloride, mg/L	250	500	600
Sulfate, mg/L	250	500	600

(b) Each community water system shall monitor its groundwater sources or distribution system entry points representative of the effluent of source treatment every three years and its approved surface water sources or distribution system entry points representative of the effluent of source treatment annually for the following:

(1) Secondary MCLs listed in Tables 64449–A and 64449–B; and

(2) Bicarbonate, carbonate, and hydroxide alkalinity, calcium, magnesium, sodium, pH, and total hardness.

(c) If the level of any constituent in Table 64449–A exceeds an MCL, the community water system shall proceed as follows:

(1) If monitoring quarterly, determine compliance by a running annual average of four quarterly samples;

(2) If monitoring less than quarterly, initiate quarterly monitoring and determine compliance on the basis of an average of the initial sample and the next three consecutive quarterly samples collected;

(3) If a violation has occurred (average of four consecutive quarterly samples exceeds an MCL), inform the State Board when reporting pursuant to Section 64469;

(4) After one year of quarterly monitoring during which all the results are below the MCL and the results do not indicate any trend toward exceeding the MCL, the system may request the State Board to allow a reduced monitoring frequency.

(d) For the constituents shown on Table 64449–B, no fixed consumer acceptance contaminant level has been established.

(1) Constituent concentrations lower than the Recommended contaminant level are desirable for a higher degree of consumer acceptance.

(2) Constituent concentrations ranging to the Upper contaminant level are acceptable if it is neither reasonable nor feasible to provide more suitable waters.

(3) Constituent concentrations ranging to the Short Term contaminant level are acceptable only for existing community water systems on a temporary basis pending construction of treatment facilities or development of acceptable new water sources.

(e) New services from community water systems serving water which carries constituent concentrations between the upper and short term contaminant levels shall be approved only:

(1) If adequate progress is being demonstrated toward providing water of improved mineral quality.

(2) For other compelling reasons approved by the State Board.

(f) A community water system may apply to the State Board for a waiver from the monitoring frequencies specified in subsection (b), if the system has conducted at least three rounds of monitoring (three periods for groundwater sources or three years for approved surface water sources) and these analytical results are less than the MCLs. The water system shall specify the basis for its request. A system with a waiver shall collect a minimum of one sample per source while the waiver is in effect and the term of the waiver shall not exceed one compliance cycle (i.e., nine years).

(g) Nontransient-noncommunity and transient-noncommunity water systems shall monitor their sources or distribution system entry points representative of the effluent of source treatment for bicarbonate, carbonate, and hydroxide alkalinity, calcium, iron, magnesium, manganese, pH, specific conductance, sodium, and total hardness at least once. In addition, nontransient-noncommunity water systems shall monitor for the constituents in Tables 64449–A and B at least once.

§ 64449.2. Waivers for Secondary MCL Compliance.

(a) If the average of four consecutive quarters of sample results for a constituent that does not have a primary MCL is not greater than three times the secondary MCL or greater than the State Notification Level, an existing community water system is eligible to apply for a nine-year waiver of a secondary MCL in Table 64449–A, for the following:

(1) An existing source; or

(2) A new source that is being added to the existing water system, as long as:

(A) The source is not being added to expand system capacity for further development; and

(B) The concentration of the constituent of concern in the new source would not cause the average value of the constituent's concentration at any point in the water delivered by the system to increase by more than 20%.

(b) To apply for a waiver of a secondary MCL, the community water system shall conduct and submit a study to the State Board within one year of violating the MCL that includes the following:

(1) The water system complaint log, maintained pursuant to section 64470(a), along with any other evidence of customer dissatisfaction, such as a log of calls to the county health department;

(2) An engineering report, prepared by an engineer registered in California with experience in drinking water treatment, that evaluates all reasonable alternatives and costs for bringing the water system into MCL compliance and includes a recommendation for the most cost-effective and feasible approach;

(3) The results of a customer survey distributed to all the water system's billed customers that has first been approved by the State Board based on whether it includes:

(A) Estimated costs to individual customers of the most cost-effective alternatives presented in the engineering report that are acceptable to the State Board based on its review of their effectiveness and feasibility;

(B) The query: "Are you willing to pay for *(identify constituent)* reduction treatment?";

(C) The query: "Do you prefer to avoid the cost of treatment and live with the current water quality situation?"

(D) The statement: "If you do not respond to this survey, (*insert system name*) will assume that you are in support of the reduction treatment recommended by the engineering report."

(4) A brief report (agenda, list of attendees, and transcript) of a public meeting held by the water system to which customers were invited, and at which both the tabulated results of the customer survey and the engineering report were presented with a request for input from the public.

(c) A community water system may apply for a waiver for iron and/or manganese if, in addition to meeting the requirements in Subsection (b), an average of four consecutive quarter results for the source has not exceeded a State Notification Level for iron and/or manganese. In addition, the system shall include sequestering, as follows:

(1) As one of the alternatives evaluated in the Engineering Report;

(2) In the customer survey as a query: "Are you willing to pay for iron and/or manganese sequestering treatment?"

(d) Unless 50% or more of the billed customers respond to the survey, the community water system shall conduct another survey pursuant to Subsections (b) or (c) within three months from the date of the survey by sending the survey out to either all the customers again, or only the customers that did not respond to the survey. The water system shall not be eligible for a waiver until it achieves at least a 50% response rate on the survey.

(e) If the customer survey indicates that the percentage of billed customers that voted for constituent reduction treatment and the number of billed customers that did not respond to the survey at all exceeds 50% of the total number of billed customers, the community water system shall install treatment, except as provided in Subsection (f), within three years from the date the system completed the customer survey, pursuant to a schedule established by the State Board.

(f) For iron and/or manganese MCL waiver applications, if the percentage of survey respondents that voted for constituent reduction treatment plus the percentage of survey respondents that voted for sequestering exceeds the percentage that voted to avoid the cost and maintain the current water quality situation, the community water system shall implement either constituent reduction treatment or sequestering, on the basis of which was associated with the higher percentage result. If the highest percentage result is for sequestering, the system shall submit a sequestering implementation and assessment plan to the State Board that includes:

(1) A description of the pilot testing or other type of evaluation performed to determine the most effective sequestering agent for use in the system's water;

(2) The sequestering agent feed rate and the equipment to be used to insure that the rate is maintained for each source;

(3) An operations plan; and

(4) The projected cost of sequestering including capital, operations and maintenance costs.

(g) To apply for renewal of a waiver for a subsequent nine years, the system shall request approval from the State Board at least six months prior to the end of the current waiver period. The renewal request shall include all monitoring and treatment operations data for the constituent for which the waiver had been granted and any related customer complaints submitted to the water system. Based on its review of the data and customer complaints, the State Board may require the water system to conduct another customer survey pursuant to this section before making a determination on the waiver renewal.

§ 64449.4. Use of Sources that Exceed a Secondary MCL and Do Not Have a Waiver.

A source that exceeds one or more of the secondary MCLs in Table 64449–A and does not have a waiver may be used only if the source meets the requirements in Section 64414, and the community water system:

(a) Meters the source's monthly production and submits the results to the State Board by the 10th day of the next month;

(b) Counts any part of a day as a full day for purposes of determining compliance with Section 64414(c);

(c) As a minimum, conducts public notification by including information on the source's use (dates, constituent levels, and reasons) in the Consumer Confidence Report (Sections 64480 through 64483);

(d) Provides public notice prior to use of the source by electronic media, publication in a local newspaper, and/or information in the customer billing, if the situation is such that

the water system can anticipate the use of the source (e.g., to perform water system maintenance); and

(e) Takes corrective measures such as flushing after the source is used to minimize any residual levels of the constituent in the water distribution system.

§ 64449.5. Distribution System Physical Water Quality.

(a) The water supplier shall determine the physical water quality in the distribution system. This determination shall be based on one or more of the following:

(1) Main flushing operations and flushing records.

(2) Consumer complaint records showing location, nature and duration of the physical water quality problem.

(3) Other pertinent data relative to physical water quality in the distribution system.

(b) If the State Board determines that a water system does not have sufficient data on physical water quality in the distribution system to make the determination required in paragraph (a), the water supplier shall collect samples for the following general physical analyses: color, odor, and turbidity. Samples shall be collected from representative points in the distribution system:

(1) For community water systems with 200 to 1,000 service connections: one sample per month.

(2) For community water systems with greater than 1,000 service connections: one sample for every four bacteriological samples required per month.

(3) For community water systems with less than 200 service connections: as established by the local health officer or the State Board.

(c) Odor samples required as a part of general physical analyses may be examined in the field as per Section 64415(b).

(d) The distribution system water of public water systems shall be free from significant amounts of particulate matter.

Article 18. Notification of Water Consumers and the State Board

§ 64463. General Public Notification Requirements.

(a) Each public (community, nontransient-noncommunity and transient-noncommunity) water system shall give public notice to persons served by the water system pursuant to this article.

(b) Each water system required to give public notice shall submit the notice to the State Board, in English, for approval prior to distribution or posting, unless otherwise directed by the State Board.

(c) Each wholesaler shall give public notice to the owner or operator of each of its retailer systems. A retailer is responsible for providing public notice to the persons it serves. If the retailer arranges for the wholesaler to provide the notification, the retailer shall notify the State Board prior to the notice being given.

(d) Each water system that has a violation of any of the regulatory requirements specified in section 64463.1(a), 64463.4(a), or 64463.7(a) in a portion of the distribution

system that is physically or hydraulically isolated from other parts of the distribution system may limit distribution of the notice to only persons served by that portion of the system that is out of compliance, if the State Board has granted written approval on the basis of a review of the water system and the data leading to the violation or occurrence for which notice is being given.

(e) Each water system shall give new customers public notice of any acute violation as specified in section 64463.1(a) that occurred within the previous thirty days, any continuing violation, the existence of a variance or exemption, and/or any other ongoing occurrence that the State Board has determined poses a potential risk of adverse effects on human health [based on a review of estimated exposures and toxicological data associated with the contaminant(s)] and requires a public notice. Notice to new customers shall be given as follows:

(1) Community water systems shall give a copy of the most recent public notice prior to or at the time service begins; and

(2) Noncommunity water systems shall post the most recent public notice in conspicuous locations for as long as the violation, variance, exemption, or other occurrence continues.

§ 64463.1. Tier 1 Public Notice.

(a) A water system shall give public notice pursuant to this section and section 64465 if any of the following occurs:

(1) Violation of the *E. coli* MCL (as specified in section 64426.1(b))

(2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, or when the water system fails to take a confirmation sample within 24 hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL;

(3) Violation of a Chapter 17 treatment technique requirement resulting from a single exceedance of a maximum allowable turbidity level if:

(A) The State Board determines after consultation with the water system and a review of the data that a Tier 1 public notice is required; or

(B) The consultation between the State Board and the water system does not take place within 24 hours after the water system learns of the violation;

(4) Occurrence of a waterborne microbial disease outbreak, as defined in section 64651.91, or other waterborne emergency, a failure or significant interruption in water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that has the potential for adverse effects on human health as a result of short-term exposure;

(5) Other violation or occurrence that has the potential for adverse effects on human health as a result of short-term exposure, as determined by the State Board based on a review of all available toxicological and analytical data;

(6) Violation of the MCL for perchlorate or when a system is unable to resample within 48 hours of the system's receipt of the first sample showing an exceedance of the perchlorate MCL as specified in section 64432.3(d)(3);

(7) For chlorite:

(A) Violation of the MCL for chlorite;

(B) When a system fails to take the required sample(s) within the distribution system, on the day following an exceedance of the MCL at the entrance to the distribution system; or

(C) When a system fails to take a confirmation sample pursuant to section 64534.2(b)(4); or

(8) Violation of the MRDL for chlorine dioxide; or when a system fails to take the required sample(s) within the distribution system, on the day following an exceedance of the MRDL at the entrance to the distribution system.

(b) As soon as possible within 24 hours after learning of any of the violations in subsection (a) or being notified by the State Board that it has determined there is a potential for adverse effects on human health [pursuant to paragraph (a)(4), (5), or (6)], the water system shall:

(1) Give public notice pursuant to this section;

(2) Initiate consultation with the State Board within the same timeframe; and

(3) Comply with any additional public notice requirements that are determined by the consultation to be necessary to protect public health.

(c) A water system shall deliver the public notice in a manner designed to reach residential, transient, and nontransient users of the water system and shall use, as a minimum, one of the following forms:

(1) Radio or television;

(2) Posting in conspicuous locations throughout the area served by the water system;

(3) Hand delivery to persons served by the water system; or

(4) Other method approved by the State Board, based on the method's ability to inform water system users.

§ 64463.4. Tier 2 Public Notice.

(a) A water system shall give public notice pursuant to this section if any of the following occurs:

(1) Any violation of the MCL, MRDL, and treatment technique requirements, except:

(A) Where a Tier 1 public notice is required under section 64463.1; or

(B) Where the State Board determines that a Tier 1 public notice is required, based on potential health impacts and persistence of the violations;

(2) All violations of the monitoring and testing procedure requirements in this chapter, and chapters 15.5, 17, and 17.5, for which the State Board determines that a Tier 2 rather than a Tier 3 public notice is required, based on potential health impacts and persistence of the violations;

(3) Failure to comply with the terms and conditions of any variance or exemption in place; or

(4) Exceedance of the chromium (hexavalent) MCL before the applicable compliance date in Table 64432–B, as calculated in accordance with section 64432, subsection (i).

(b) A water system shall give the notice as soon as possible within 30 days after it learns of a violation or occurrence specified in subsection (a), except that the water system may request an extension of up to 60 days for providing the notice. This extension would be subject to the State Board's written approval based on the violation or occurrence having been resolved and the State Board's determination that public

health and welfare would in no way be adversely affected. In addition, the water system shall:

(1) Maintain posted notices in place for as long as the violation or occurrence continues, but in no case less than seven days;

(2) Repeat the notice every three months as long as the violation or occurrence continues. Subject to the State Board's written approval based on its determination that public health would in no way be adversely affected, the water system may be allowed to notice less frequently but in no case less than once per year. No allowance for reduced frequency of notice shall be given in the case of an *E. coli* MCL violation or violation of a coliform treatment technique or Chapter 17 treatment technique requirement; and

(3) For turbidity violations pursuant to sections 64652.5(c)(2) and 64653(c), (d) and (f), as applicable, a water system shall consult with the State Board as soon as possible within 24 hours after the water system learns of the violation to determine whether a Tier 1 public notice is required. If consultation does not take place within 24 hours, the water system shall give Tier 1 public notice within 48 hours after learning of the violation.

(c) A water system shall deliver the notice, in a manner designed to reach persons served, within the required time period as follows:

(1) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, community water systems shall give public notice by;

(A) Mail or direct delivery to each customer receiving a bill including those that provide their drinking water to others (e.g., schools or school systems, apartment building owners, or large private employers), and other service connections to which water is delivered by the water system; and

(B) Use of one or more of the following methods to reach persons not likely to be reached by a mailing or direct delivery (renters, university students, nursing home patients, prison inmates, etc.):

1. Publication in a local newspaper;

2. Posting in conspicuous public places served by the water system, or on the Internet; or

3. Delivery to community organizations.

(2) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, noncommunity water systems shall give the public notice by:

(A) Posting in conspicuous locations throughout the area served by the water system; and

(B) Using one or more of the following methods to reach persons not likely to be reached by a public posting:

1. Publication in a local newspaper or newsletter distributed to customers;

2. E-mail message to employees or students;

3. Posting on the Internet or intranet; or

4. Direct delivery to each customer.

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§ 64463.7. Tier 3 Public Notice.

(a) Each water system shall give public notice pursuant to this section if any of the following occurs:

(1) Monitoring violations;

(2) Failure to comply with a testing procedure, except where a Tier 1 public notice is required pursuant to section 64463.1 or the State Board determines that a Tier 2 public notice is required pursuant to section 64463.4;

(3) Operation under a variance or exemption;

(4) Failure to comply with a reporting requirement pursuant to article 3; or

(5) Failure to comply with a recordkeeping requirement pursuant to section 64470(b)(7).

(b) Each water system shall give the public notice within one year after it learns of the violation or begins operating under a variance or exemption.

(1) The water system shall repeat the public notice annually for as long as the violation, variance, exemption, or other occurrence continues.

(2) Posted public notices shall remain in place for as long as the violation, variance, exemption, or other occurrence continues, but in no case less than seven days.

(3) Instead of individual Tier 3 public notices, a water system may use an annual report detailing all violations and occurrences for the previous twelve months, as long as the water system meets the frequency requirements specified in this subsection.

(c) Each water system shall deliver the notice in a manner designed to reach persons served within the required time period, as follows:

(1) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, community water systems shall give public notice by

(A) Mail or direct delivery to each customer receiving a bill including those that provide their drinking water to others (e.g., schools or school systems, apartment building owners, or large private employers), and other service connections to which water is delivered by the water system; and

(B) Use of one or more of the following methods to reach persons not likely to be reached by a mailing or direct delivery (renters, university students, nursing home patients, prison inmates, etc.):

1. Publication in a local newspaper;

2. Posting in conspicuous public places served by the water system, or on the Internet; or

3. Delivery to community organizations.

(2) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, noncommunity water systems shall give the public notice by:

(A) Posting in conspicuous locations throughout the area served by the water system; and

(B) Using one or more of the following methods to reach persons not likely to be reached by a posting:

1. Publication in a local newspaper or newsletter distributed to customers;

2. E-mail message to employees or students;

3. Posting on the Internet or intranet; or
4. Direct delivery to each customer.

(d) Community and nontransient-noncommunity water systems may use the Consumer Confidence Report pursuant to sections 64480 through 64483, to meet the initial and repeat Tier 3 public notice requirements in subsection 64463.7(b), as long as the Report meets the following:

(1) Is given no later than one year after the water system learns of the violation or occurrence;

(2) Includes the content specified in section 64465; and

(3) Is distributed pursuant to paragraph (b)(1) and (2) or subsection (c).

§ 64465. Public Notice and Content and Format.

(a) Each public notice given pursuant to this article, except Tier 3 public notices for variances and exemptions pursuant to subsection (b), shall contain the following:

(1) A description of the violation or occurrence, including the contaminant(s) of concern, and (as applicable) the contaminant level(s);

(2) The date(s) of the violation or occurrence;

(3) Any potential adverse health effects from the violation or occurrence, including the appropriate standard health effects language from appendices 64465–A through H;

(4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in drinking water;

(5) Whether alternative water supplies should be used;

(6) What actions consumers should take, including when they should seek medical help, if known;

(7) What the water system is doing to correct the violation or occurrence;

(8) When the water system expects to return to compliance or resolve the occurrence;

(9) The name, business address, and phone number of the water system owner, operator, or designee of the water system as a source of additional information concerning the public notice;

(10) A statement to encourage the public notice recipient to distribute the public notice to other persons served, using the following standard language: "Please share this information with all the other people who drink this water, especially those who may not have received this public notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mail."; and

(11) For a water system with a monitoring and testing procedure violation, this language shall be included: "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [*compliance period dates*], we *['did not monitor or test'* or *'did not complete all monitoring or testing']* for *[contaminant(s)]*, and therefore, cannot be sure of the quality of your drinking water during that time."

(b) A Tier 3 public notice for a water system operating under a variance or exemption shall include the elements in this subsection. If a water system has violated its variance

or exemption conditions, the public notice shall also include the elements in subsection (a).

(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 water system is taking to install 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 of the variance or exemption.

(c) A public water system providing notice pursuant to this article shall comply with the following multilingual-related requirements:

(1) For a Tier 1 public notice:

(A) The notice shall be provided in English, Spanish, and the language spoken by any non-English-speaking group exceeding 10 percent of the persons served by the public water system, and the notice shall include a telephone number or address where such individuals may contact the public water system for assistance; and

(B) If any non-English-speaking group exceeds 1,000 persons served by the public water system, but does not exceed 10 percent served, the notice shall include information in the appropriate language(s) regarding the importance of the notice, and the telephone number or address where such individuals may contact the public water system to obtain a translated copy of the notice from the public water system or assistance in the appropriate language;

(2) For a Tier 2 or Tier 3 public notice:

(A) The notice shall contain information in Spanish regarding the importance of the notice, or contain a telephone number or address where Spanish-speaking residents may contact the public water system to obtain a translated copy of the notice or assistance in Spanish; and

(B) When a non-English speaking group other than Spanish-speaking exceeds 1,000 residents or 10 percent of the residents served by the public water system, the notice shall include:

1. Information in the appropriate language(s) regarding the importance of the notice; or

2. A telephone number or address where such residents may contact the public water system to obtain a translated copy of the notice or assistance in the appropriate language; and

(3) For a public water system subject to the Dymally-Alatorre Bilingual Services Act, Chapter 17.5, Division 7, of the Government Code (commencing with section 7290), meeting the requirements of this Article may not ensure compliance with the Dymally-Alatorre Bilingual Services Act.

(d) Each public notice given pursuant to this article shall:

(1) Be displayed such that it catches people's attention when printed or posted and be formatted in such a way that the message in the public notice can be understood at the eighth-grade level;

(2) Not contain technical language beyond an eighth-grade level or print smaller than 12 point; and

(3) Not contain language that minimizes or contradicts the information being given in the public notice.

Appendix 64465–A. Health Effects Language Microbiological Contaminants

Contaminant	*Health Effects Language*
E. coli	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.
Coliform Assessment and/or Corrective Action Violations	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found. *For a public notice, the water system shall use the following applicable sentences:* We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment(s).
E. coli Assessment and/or Corrective Action Violations	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. *For a public notice, the water system shall use the following applicable sentences:*

	We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment.
Seasonal System Treatment Technique Violations	*When this violation includes the failure to monitor for total coliforms or* E. coli *prior to serving water to the public, the mandatory language found at section 64465(a)(11) shall be used.* *When the violation includes failure to complete other actions, the appropriate elements found in sections 64465(a)(1) through (10) to describe the violation shall be used.*
Turbidity	Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Appendix 64465–B. Health Effects Language Surface Water Treatment

Contaminant	*Health Effects Language*
Giardia lamblia Viruses Heterotrophic plate count bacteria Legionella Cryptosporidium	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.

Appendix 64465–C. Health Effects Language Radioactive Contaminants

Contaminant	*Health Effects Language*
Gross Beta particle activity	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Strontium-90	Some people who drink water containing strontium-90 in excess of the MCL over many years may have an increased risk of getting cancer.
Tritium	Some people who drink water containing tritium in excess of the MCL over many years may have an increased risk of getting cancer.

Gross Alpha particle activity	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined Radium 226/228	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Total Radium (for nontransient noncommunity water systems)	Some people who drink water containing radium 223, 224, or 226 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium	Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

Appendix 64465–D. Health Effects Language Inorganic Contaminants

Contaminant	*Health Effects Language*
Aluminum	Some people who drink water containing aluminum in excess of the MCL over many years may experience short-term gastrointestinal tract effects**.**
Antimony	Some people who drink water containing antimony in excess of the MCL over many years may experience increases in blood cholesterol and decreases in blood sugar.
Arsenic	Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer.
Asbestos	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium	Some people who drink water containing barium in excess of the MCL over many years may experience an increase in blood pressure.
Beryllium	Some people who drink water containing beryllium in excess of the MCL over many years may develop intestinal lesions.
Cadmium	Some people who drink water containing cadmium in excess of the MCL over many years may experience kidney damage.

Chromium (hexavalent)	Some people who drink water containing hexavalent chromium in excess of the MCL over many years may have an increased risk of getting cancer.
Chromium (total)	Some people who use water containing chromium in excess of the MCL over many years may experience allergic dermatitis.
Copper	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide	Some people who drink water containing cyanide in excess of the MCL over many years may experience nerve damage or thyroid problems.
Fluoride	*For the Consumer Confidence Report:* Some people who drink water containing fluoride in excess of the federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the state MCL of 2 mg/L may get mottled teeth. *For a Public Notice:* This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system [*name*] has a fluoride concentration of [*insert value*] mg/L.Dental fluorosis may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water. Drinking water containing more than 4 mg/L of fluoride can increase your risk of developing bone disease.

	For more information, please call [*water system contact name*] of [*water system name*] at [*phone number*]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call the State Board's Residential Water Treatment Device Registration Unit at (916) 449-5600.
Lead	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.
Mercury	Some people who drink water containing mercury in excess of the MCL over many years may experience mental disturbances, or impaired physical coordination, speech and hearing.
Nickel	Some people who drink water containing nickel in excess of the MCL over many years may experience liver and heart effects.
Nitrate	Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.
Nitrite	Infants below the age of six months who drink water containing nitrite in excess of the MCL may become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blueness of the skin.
Perchlorate	Perchlorate has been shown to interfere with uptake of iodide by the thyroid gland, and to thereby reduce the production of thyroid hormones, leading to adverse effects associated with inadequate hormone levels. Thyroid hormones are needed for normal prenatal growth and development of the fetus, as well as for normal growth and development in the infant and child. In adults, thyroid hormones are needed for normal metabolism and mental function.
Selenium	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years may experience hair or

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	fingernail losses, numbness in fingers or toes, or circulation system problems.
Thallium	Some people who drink water containing thallium in excess of the MCL over many years may experience hair loss, changes in their blood, or kidney, intestinal, or liver problems.

Appendix 64465–E. Health Effects Language Volatile Organic Contaminants

Contaminant	*Health Effects Language*
Benzene	Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon Tetrachloride	Some people who use water containing carbon tetrachloride in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer.
1,2-Dichlorobenzene	Some people who drink water containing 1,2-dichlorobenzene in excess of the MCL over many years may experience liver, kidney, or circulatory system problems.
1,4-Dichlorobenzene	Some people who use water containing 1,4-dichlorobenzene in excess of the MCL over many years may experience anemia, liver, kidney, or spleen damage, or changes in their blood.
1,1-Dichloroethane	Some people who use water containing 1,1-dichloroethane in excess of the MCL over many years may experience nervous system or respiratory problems.
1,2-Dichloroethane	Some people who use water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene	Some people who use water containing 1,1-dichloroethylene in excess of the MCL over many years may experience liver problems.
cis-1,2-Dichloroethylene	Some people who use water containing cis-1,2-dichloroethylene in excess of the MCL over many years may experience liver problems.
trans-1,2-Dichloroethylene	Some people who drink water containing trans-1,2-dichloroethylene in excess of the MCL over many years may experience liver problems.

Dichloromethane	Some people who drink water containing dichloromethane in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane	Some people who use water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
1,3-Dichloropropene	Some people who use water containing 1,3-dichloropropene in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene	Some people who use water containing ethylbenzene in excess of the MCL over many years may experience liver or kidney problems.
Methyl-tert-butyl ether	Some people who use water containing methyl-tert-butyl ether in excess of the MCL over many years may have an increased risk of getting cancer.
Monochlorobenzene	Some people who use water containing monochlorobenzene in excess of the MCL over many years may experience liver or kidney problems.
Styrene	Some people who drink water containing styrene in excess of the MCL over many years may experience liver, kidney, or circulatory system problems.
1,1,2,2-Tetrachloroethane	Some people who drink water containing 1,1,2,2-tetrachloroethane in excess of the MCL over many years may experience liver or nervous system problems.
Tetrachloroethylene	Some people who use water containing tetrachloroethylene in excess of the MCL over many years may experience liver problems, and may have an increased risk of getting cancer.
1,2,4-Trichlorobenzene	Some people who use water containing 1,2,4-trichlorobenzene in excess of the MCL over many years may experience adrenal gland changes.
1,1,1,-Trichloroethane	Some people who use water containing 1,1,1-trichloroethane in excess of the MCL over many years may experience liver, nervous system, or circulatory system problems.
1,1,2-Trichloroethane	Some people who use water containing 1,1,2-trichloroethane in excess of the MCL over many years may experience liver, kidney, or immune system problems.
Trichloroethylene (TCE)	Some people who use water containing trichloroethylene in excess of the MCL over many

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	years may experience liver problems and may have an increased risk of getting cancer.
Toluene	Some people who use water containing toluene in excess of the MCL over many years may experience nervous system, kidney, or liver problems.
Trichlorofluoro-methane	Some people who use water containing trichlorofluoromethane in excess of the MCL over many years may experience liver problems.
1,1,2-Trichloro-1,2,2-trifluoroethane	Some people who use water containing 1,1,2-trichloro-1,2,2-trichfluoroethane in excess of the MCL over many years may experience liver problems.
Vinyl Chloride	Some people who use water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes	Some people who use water containing xylenes in excess of the MCL over many years may experience nervous system damage.

Appendix 64465–F. Health Effects Language Synthetic Organic Contaminants

Contaminant	*Health Effects Language*
2,4-D	Some people who use water containing the weed killer 2,4-D in excess of the MCL over many years may experience kidney, liver, or adrenal gland problems.
2,4,5-TP (Silvex)	Some people who drink water containing Silvex in excess of the MCL over many years may experience liver problems.
Alachlor	Some people who use water containing alachlor in excess of the MCL over many years may experience eye, liver, kidney, or spleen problems, or experience anemia, and may have an increased risk of getting cancer.
Atrazine	Some people who use water containing atrazine in excess of the MCL over many years may experience cardiovascular system problems or reproductive difficulties.
Bentazon	Some people who drink water containing bentazon in excess of the MCL over many years may experience prostate and gastrointestinal effects.

Benzo(a)pyrene [PAH]	Some people who use water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran	Some people who use water containing carbofuran in excess of the MCL over many years may experience problems with their blood, or nervous or reproductive system problems.
Chlordane	Some people who use water containing chlordane in excess of the MCL over many years may experience liver or nervous system problems, and may have an increased risk of getting cancer.
Dalapon	Some people who drink water containing dalapon in excess of the MCL over many years may experience minor kidney changes.
Dibromochloro-propane (DBCP)	Some people who use water containing DBCP in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Di (2-ethylhexyl) adipate	Some people who drink water containing di(2-ethylhexyl) adipate in excess of the MCL over many years may experience weight loss, liver enlargement, or possible reproductive difficulties.
Di (2-ethylhexyl) phthalate	Some people who use water containing di(2-ethylhexyl) phthalate well in excess of the MCL over many years may experience liver problems or reproductive difficulties, and may have an increased risk of getting cancer.
Dinoseb	Some people who drink water containing dinoseb in excess of the MCL over many years may experience reproductive difficulties.
Dioxin (2,3,7,8-TCDD)	Some people who use water containing dioxin in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Diquat	Some people who drink water containing diquat in excess of the MCL over many years may get cataracts.

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Endothall	Some people who drink water containing endothall in excess of the MCL over many years may experience stomach or intestinal problems.
Endrin	Some people who drink water containing endrin in excess of the MCL over many years may experience liver problems.
Ethylene dibromide (EDB)	Some people who use water containing ethylene dibromide in excess of the MCL over many years may experience liver, stomach, reproductive system, or kidney problems, and may have an increased risk of getting cancer.
Glyphosate	Some people who drink water containing glyphosate in excess of the MCL over many years may experience kidney problems or reproductive difficulties.
Heptachlor	Some people who use water containing heptachlor in excess of the MCL over many years may experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide	Some people who use water containing heptachlor epoxide in excess of the MCL over many years may experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years may experience liver or kidney problems, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclo-pentadiene	Some people who use water containing hexachlorocyclopentadiene in excess of the MCL over many years may experience kidney or stomach problems.
Lindane	Some people who drink water containing lindane in excess of the MCL over many years may experience kidney or liver problems.
Methoxychlor	Some people who drink water containing methoxychlor in excess of the MCL over many years may experience reproductive difficulties.

Molinate (Ordram)	Some people who use water containing molinate in excess of the MCL over many years may experience reproductive effects.
Oxamyl [Vydate]	Some people who drink water containing oxamyl in excess of the MCL over many years may experience slight nervous system effects.
PCBs [Polychlorinated biphenyls]	Some people who drink water containing PCBs in excess of the MCL over many years may experience changes in their skin, thymus gland problems, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Pentachlorophenol	Some people who use water containing pentachlorophenol in excess of the MCL over many years may experience liver or kidney problems, and may have an increased risk of getting cancer.
Picloram	Some people who drink water containing picloram in excess of the MCL over many years may experience liver problems.
Simazine	Some people who use water containing simazine in excess of the MCL over many years may experience blood problems.
Thiobencarb	Some people who use water containing thiobencarb in excess of the MCL over many years may experience body weight and blood effects.
Toxaphene	Some people who use water containing toxaphene in excess of the MCL over many years may experience kidney, liver, or thyroid problems, and may have an increased risk of getting cancer.
1,2,3-Trichloropropane	Some people who drink water containing 1,2,3-trichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

Appendix 64465–G. Health Effects Language Disinfection Byproducts, Byproduct Precursors, and Disinfectant Residuals

Contaminant	*Health Effects Language*
TTHMs [Total Trihalomethanes]	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous

	system problems, and may have an increased risk of getting cancer.
Haloacetic Acids	Some people who drink water containing halocetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Bromate	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Chloramines	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorite	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chlorine dioxide (2 consecutive daily samples at the entry point to the distribution system that are greater than the MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. *Add for public notification only:* The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system that delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
Chlorine dioxide (one or more distribution system samples are above the MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.

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	Add for public notification only: The chlorine dioxide violations reported today include exceedances of the State standard within the distribution system that delivers water to consumers. These violations may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
Control of DBP precursors (TOC)	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Appendix 64465–H. Health Effects Language Other Treatment Techniques

Contaminant	*Health Effects Language*
Acrylamide	Some people who drink water containing high levels of acrylamide over a long period of time may experience nervous system or blood problems, and may have an increased risk of getting cancer.
Epichlorohydrin	Some people who drink water containing high levels of epichlorohydrin over a long period of time may experience stomach problems, and may have an increased risk of getting cancer.

§ 64466. Special Notice for Unregulated Contaminant Monitoring Results.

Water systems required to monitor pursuant to section 64450 (Unregulated Chemicals – Monitoring) and/or Federal Register 64(180), p 50556-50620, September 17, 1999, shall notify persons served by the water system of the availability of the results, as follows:

(a) No later than 12 months after the results are known;

(b) Pursuant to sections 64463.7(c) and (d)(1) and (3); and

(c) Include a contact and telephone number where information on the results may be obtained.

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Article 19. Records, Reporting and Recordkeeping

§ 64469. Reporting Requirements.

(a) Analytical results of all sample analyses completed in a calendar month shall be reported to the State Board no later than the tenth day of the following month.

(b) Analytical results of all sample analyses completed by water wholesalers in a calendar month shall be reported to retail customers and the State Board no later than the tenth day of the following month.

(c) Analytical results shall be reported to the State Board electronically using the Electronic Deliverable Format as defined in The Electronic Deliverable Format [EDF] Version 1.2i Guidelines & Restrictions dated April 2001 and Data Dictionary dated April 2001.

(d) Within 10 days of giving initial or repeat public notice pursuant to Article 18 of this Chapter, except for notice given under section 64463.7(d), each water system shall submit a certification to the State Board that it has done so, along with a representative copy of each type of public notice given.

§ 64470. Recordkeeping.

(a) A water supplier shall maintain records on all water quality and system water outage complaints received, both verbal and written, and corrective action taken. These records shall be retained for a period of five years for State Board review.

(b) A water supplier shall retain, on or at a convenient location near the water utility premises, records as indicated below:

(1) Records of microbiological analyses and turbidity analyses from at least the most recent five years and chemical analyses from at least the most recent 10 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided the following information is included:

(A) The date, place, and time of sampling; and identification of the person who collected the sample;

(B) Identification of the sample as a routine sample, check sample, raw or finished water or other special sample;

(C) Date of report;

(D) Name of the laboratory and either the person responsible for performing the analysis or the laboratory director;

(E) The analytical technique or method used; and

(F) The results of the analysis.

(2) Records and resultant corrective actions shall be kept not less than three years following the final action taken to correct a particular violation;

(3) Copies of any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the water supplier, a private consultant or any local, state or federal agency, for not less than 10 years following completion of the sanitary survey involved;

(4) Variances or exemptions granted to the system, for not less than five years following the expiration of such variance or exemption;

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(5) Copies of any Tier 1, Tier 2, and Tier 3 public notices, for not less than three years;

(6) Copies of monitoring plans developed pursuant to sections 64416, 64422, and 64534.8 for the same period of time as the records of analyses taken under the plan are required to be kept pursuant to paragraph (1); and

(7) Copies of any Level 1 and Level 2 assessments, regardless who conducts the assessments, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken pursuant to section 64426.8 for State Board review, for not less than five years following completion of the assessment or corrective action.

Article 20. Consumer Confidence Report

§ 64480. Applicability and Distribution.

(a) Except as provided in subsection (b), each community and nontransient-noncommunity (NTNC) water system shall prepare and deliver the first Consumer Confidence Report by July 1, 2001, and subsequent reports by July 1 annually thereafter. The first Consumer Confidence Report shall contain data collected during, or prior to, calendar year 2000, as prescribed by section 64481(d)(1). Each Consumer Confidence Report thereafter shall contain data collected during, or prior to, the previous calendar year.

(b) A new community or NTNC water system shall deliver its first Consumer Confidence Report by July 1 of the year after its first full calendar year in operation and subsequent reports by July 1 annually thereafter.

(c) A community or NTNC water system that sells water to another community or NTNC water system shall deliver the applicable information required in section 64481 to the purchasing system by no later than April 1 of each year or on a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

§ 64481. Content of the Consumer Confidence Report.

(a) A Consumer Confidence Report shall contain information on the source of the water delivered, including:

(1) The type of water delivered by the water system (e.g., surface water, ground water) and the commonly used name (if any) and location of the body (or bodies) of water; and

(2) If a source water assessment has been completed, notification that the assessment is available, how to obtain it, the date it was completed or last updated, and a brief summary of the system's vulnerability to potential sources of contamination, using language provided by the State Board if the State Board conducted the assessment.

(b) For any of the following terms used in the Consumer Confidence Report, the water system shall provide the specified language below:

(1) Regulatory Action Level: "The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow."

(2) Maximum Contaminant Level or MCL: "The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water."

(3) Maximum Contaminant Level Goal or MCLG: "The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency."

(4) Public Health Goal or PHG: "The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency."

(5) Primary Drinking Water Standard or PDWS: "MCLs, MRDLs, and treatment techniques for contaminants that affect health, along with their monitoring and reporting requirements."

(6) Treatment technique: "A required process intended to reduce the level of a contaminant in drinking water."

(7) Variances and exemptions: "State Board permission to exceed an MCL or not comply with a treatment technique under certain conditions."

(8) Maximum residual disinfectant level or MRDL: "The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants."

(9) Maximum residual disinfectant level goal or MRDLG: "The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants."

(10) Level 1 Assessment: "A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system."

(11) Level 2 Assessment: "A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions."

(c) If any of the following are detected, information for each pursuant to subsection (d) shall be included in the Consumer Confidence Report:

(1) Contaminants subject to an MCL, regulatory action level, MRDL, or treatment technique (regulated contaminants), as specified in sections 64426.1, 64426.6, 64431, 64442, 64443, 64444, 64448, 64449, 64533, 64533.5, 64536, 64536.2, 64653, and 64678;

(2) Contaminants specified in 40 Code of Federal Regulations part 141.40 (7–1–2007 edition) for which monitoring is required (unregulated contaminants);

(3) Microbial contaminants detected as provided under subsection (e); and

(4) Sodium and hardness.

(d) For contaminants identified in subsection (c), the water system shall include in the Consumer Confidence Report one table or several adjacent tables that have been developed pursuant to this subsection. Any additional monitoring results that a water system chooses to include in its Consumer Confidence Report shall be displayed separately.

(1) The data in the table(s) shall be derived from data collected to comply with U.S. Environmental Protection Agency (USEPA) and State Board monitoring and analytical requirements during calendar year 2000 for the first Consumer Confidence Report and subsequent calendar years thereafter. Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) shall include the date and results of the most recent sampling and the Consumer Confidence Report shall include a brief statement indicating that the data presented in the table(s) are from the most recent testing done in accordance with the regulations. No data older than 9 years need be included.

(2) For detected regulated contaminants referenced in subsection (c)(1), the table(s) shall include:

(A) The MCL expressed as a number equal to or greater than 1.0;

(B) For a primary MCL, the public health goal (PHG) in the same units as the MCL; or if no PHG has been set for the contaminant, the table shall include the USEPA maximum contaminant level goal in the same units as the MCL;

(C) For a detected contaminant that does not have an MCL, the table(s) shall indicate whether there is a treatment technique or specify the regulatory action level or MRDL (and MRDLG) applicable to that contaminant, and the Consumer Confidence Report shall include the appropriate language specified in subsection (b);

(D) For detected contaminants subject to an MCL, except turbidity and *E. coli,* the sample result(s) collected at compliance monitoring sampling points shall be reported in the same units as the MCL as follows:

1. When compliance is determined by the results of a single sample, an initial sample averaged with one or two confirmation sample(s), or an average of four quarterly or six monthly samples, results shall be reported as follows:

A. For a single sampling point, or multiple sampling points for which data is being individually listed on the Consumer Confidence Report: the sample result and, if more than one sample was collected, the average and range of the sample results;

B. For multiple sampling points, each of which has been sampled only once and for which data is being summarized together on the Consumer Confidence Report: the average and range of the sample results. If the waters from the sampling points are entering the distribution system at the same point, a flow-weighted average may be reported; and

C. For multiple sampling points, one or more of which has been sampled more than once and for which data is being summarized together on the Consumer Confidence Report: the average of the individual sampling point averages and range of all the sample results. If the waters from the sampling points are entering the distribution system at the same point, a flow-weighted average may be reported.

2. When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location:

A. The highest running annual average of the monitoring location and the range of sample results or, if monitoring locations are summarized together for the Consumer Confidence Report, the highest running annual average of any of the monitoring locations and the range of sample results from all the monitoring locations; and

B. For TTHM and HAA5 monitored pursuant to section 64534.2(d): the highest locational running annual average (LRAA) for TTHM and HAA5 and the range of individual sample results for all monitoring locations. If more than one location exceeds the TTHM or HAA5 MCL, include the LRAA for all locations that exceed the MCL.

3. When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all monitoring location averages: the highest running annual average and the range of sample results from all the sampling points.

4. When compliance with the MCL is determined on the basis of monitoring after treatment installed to remove a contaminant: the average level detected in the water entering the distribution system and the range of sample results; and

5. If an MCL compliance determination was made in the year for which sample results are being reported and that determination was based on an average of results from both the previous and reporting years, then the compliance determination average shall be reported, but the range shall be based only on results from the year for which data is being reported.

(E) For turbidity:

1. When it is reported pursuant to the requirements of section 64652.5 (filtration avoidance): the highest value; and

2. When it is reported pursuant to section 64653 (filtration): the highest single measurement based on compliance reporting and the lowest monthly percentage of samples meeting the turbidity limits specified in section 64653 for the filtration technology being used;

(F) For lead and copper: the 90th percentile value of the most recent round of sampling, the number of sites sampled, and the number of sampling sites exceeding the action level;

(G) For *E. coli*: the total number of positive samples during the year; and

(H) The likely source(s) of any detected contaminants having an MCL, MRDL, regulatory action level, or treatment technique. If the water system lacks specific information on the likely source, the table(s) shall include one or more of the typical sources for that contaminant listed in appendix 64481–A or 64481–B that are most applicable to the system.

(3) The table(s) shall clearly identify any data indicating violations of MCLs, regulatory action levels, MRDLs, or treatment techniques and the Consumer Confidence Report shall give information on each violation including the length of the violation, potential adverse health effects (PDWS only), and actions taken by the system to address the violation. To describe the potential health effects, the system shall use the relevant language pursuant to appendices 64465–A through H; and

(4) For detected unregulated contaminants for which monitoring is required (except *Cryptosporidium*), the table(s) shall contain the average and range at which the contaminant was detected.

(e) If the system has performed any monitoring for *Cryptosporidium* that indicates that *Cryptosporidium* may be present in the source water or the finished water, the Consumer Confidence Report shall include a summary of the monitoring results and an explanation of their significance.

(f) If the system has performed any monitoring for radon that indicates that radon is present in the finished water, the Consumer Confidence Report shall include the monitoring results and an explanation of their significance.

(g) For the year covered by the report, the Consumer Confidence Report shall note any violations of paragraphs (1) through (7) and give related information, including any potential adverse health effects, and the steps the system has taken to correct the violation.

(1) Monitoring and reporting of compliance data.

(2) Filtration, disinfection, and recycled provisions prescribed by sections 64652, 64652.5, 64653, 64653.5(b), or 64654. For systems that have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes that constitutes a violation, the Consumer Confidence Report shall include the health effects language pursuant to appendix 64465–B as part of the explanation of potential adverse health effects.

(3) One or more actions prescribed by the lead and copper requirements in sections 64673, 64674, 64683 through 64686, and 64688. To address potential adverse health effects, the Consumer Confidence Report shall include the applicable language pursuant to appendix 64465–D for lead, copper, or both.

(4) Treatment technique requirements for Acrylamide and Epichlorohydrin in section 64448; to address potential adverse health effects, the Consumer Confidence Report shall include the relevant language from appendix 64465–H.

(5) Recordkeeping of compliance data.

(6) Special monitoring requirements prescribed by section 64449(b)(2) and (g).

(7) Terms of a variance, an exemption, or an administrative or judicial order.

(h) If a system is operating under the terms of a variance or an exemption issued under section 116430 or 116425 of the Health and Safety Code, the Consumer Confidence Report 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 system is taking to install 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.

(i) A Consumer Confidence Report shall contain the language in paragraphs (1) through (4).

(1) "The sources of drinking water (both tap water and bottled 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."

(2) "Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

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 stormwater runoff, agricultural application, and septic systems.

Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities."

(3) "In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health."

(4) "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 and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791)."

(j) A Consumer Confidence Report 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, people with 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. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1–800–426–4791)."

(k) A Consumer Confidence Report shall include the telephone number of the owner, operator, or designee of the water system as a source of additional information concerning the report.

(l) A Consumer Confidence Report shall contain information in Spanish regarding the importance of the report or contain a telephone number or address where Spanish-speaking residents may contact the system to obtain a translated copy of the report or assistance in Spanish. For each non-English speaking group other than Spanish-speaking that exceeds 1,000 residents or 10% of the residents in a community, the Consumer Confidence Report shall contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

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(m) A Consumer Confidence Report shall include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

(n) A Consumer Confidence Report shall:

(1) If a water system is required to comply with a Level 1 or Level 2 assessment requirement that is not due to an *E. coli* MCL violation, contain the information indicated in table 64481–A;

Table 64481–A. CCR Language
Level 1 or Level 2 Assessment Not Due to an *E. coli* MCL Violation

CCR Language
Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.
The water system shall include the following statements, as appropriate:
During the past year we were required to conduct [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s). [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.
During the past year [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were required to be completed for our water system. [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.
If the water system failed to complete all the required assessments or correct all identified sanitary defects, the water system is in violation of the treatment technique requirement and shall include the following statements, as appropriate:
During the past year we failed to conduct all of the required assessment(s).
During the past year we failed to correct all identified defects that were found during the assessment.

(2) If a water system is required to comply with a Level 2 assessment requirement that is due to an *E. coli* MCL violation, contain the information indicated in Table 64481–B;

Table 64481–B. CCR Language
Level 2 Assessment Due to an *E. coli* MCL Violation

CCR Language

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

We were required to complete a Level 2 assessment because we found *E. coli* in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

If a water system failed to complete the required assessment or correct all identified sanitary defects, the water system is in violation of the treatment technique requirement and shall include the following statements, as appropriate:

We failed to conduct the required assessment.

We failed to correct all sanitary defects that were identified during the assessment.

(3) If a water system detects *E. coli* and has violated the *E. coli* MCL, include one or more the following statements to describe any noncompliance, as applicable:

(A) "We had an *E. coli*-positive repeat sample following a total coliform positive routine sample."

(B) "We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample."

(C) "We failed to take all required repeat samples following an *E. coli*-positive routine sample."

(D) "We failed to test for *E. coli* when any repeat sample tests positive for total coliform."; and

(4) If a water system detects *E. coli* and has not violated the *E. coli* MCL, may include a statement that explains that although they have detected *E. coli*, they are not in violation of the *E. coli* MCL.

(o) The Consumer Confidence Report prepared and delivered by July 1, 2022 shall, for bacteriological monitoring conducted from January 1, 2021 to June 30, 2021, inclusive, include the following additional information in the report:

(1) The total coliform MCL expressed as shown in Table 64481–C.

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Table 64481–C
Total Coliform MCL for Consumer Confidence Report

Contaminant	*MCL*
Total Coliform	(A) *For a water system collecting at least 40 samples per month:* 5.0 percent of monthly samples are positive. (B) *For a water system collecting fewer than 40 samples per month:* one positive monthly sample.
Fecal coliform and *E. coli*	0

(2) For total coliform:

(A) The highest monthly percentage of positive samples for a water system collecting at least 40 samples per month; or

(B) The highest monthly number of positive samples for a water system collecting fewer than 40 samples per month.

(3) For fecal coliform and *E. coli*: the total number of positive samples during the year.

(4) The likely source(s) of any total coliform, fecal coliform, or *E. coli* detected. If the water system lacks specific information on the likely source, the table shall include the typical source for that contaminant listed in Table 64481–D.

Table 64481–D
Typical Origins of Microbiological Contaminants with Primary MCL

Contaminant	*Major Origins in Drinking Water*
Total coliform bacteria	Naturally present in the environment
Fecal coliform and *E. coli*	Human and animal fecal waste

(5) Information on any data indicating violation of the total coliform MCL, including the length of the violation, potential adverse health effects, and actions taken by the water system to address the violation. To describe the potential health effects, the water system shall use the relevant language in Table 64481–E.

Table 64481–E
Health Effects Language for Microbiological Contaminants

Contaminant	*Health Effects Language*
Total Coliform	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Contaminant	*Health Effects Language*
Fecal Coliform	Fecal coliforms are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
E. coli	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, some of the elderly, and people with severely-compromised immune systems.

(6) For violation of subsection (g)(1), (5), or (7), note the violation and give related information, including any potential adverse health effects, and the steps the water system has taken to correct the violation.

(p) A Consumer Confidence Report issued after October 1, 2024 and prior to the applicable compliance date in Table 64432-B shall include the following information for chromium (hexavalent):

(1) If chromium (hexavalent) is detected, the Consumer Confidence Report shall include information pursuant to subsections (c) and (d).

(2) If chromium (hexavalent) exceeds the MCL, the Consumer Confidence Report shall include additional information indicated in Table 64481-F.

Table 64481-F CCR Language

Hexavalent Chromium MCL Exceedance

CCR Language
Chromium (hexavalent) was detected at levels that exceed the chromium (hexavalent) MCL. While a water system of our size is not considered in violation of the chromium (hexavalent) MCL until after [INSERT APPLICABLE TABLE 64432–B COMPLIANCE DATE], we are working to address this exceedance and comply with the MCL. Specifically, we are [INSERT ACTIONS TAKEN AND PLANNED TO COMPLY WITH THE APPLICABLE COMPLIANCE DATE IN TABLE 64432–B].

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Appendix 64481–A. Typical Origins of Contaminants with Primary MCLs, MRDLs, Regulatory Action Levels, and Treatment Techniques

Contaminant	*Major origins in drinking water*
Microbiological	
Total coliform bacteria	Naturally present in the environment
E. coli	Human and animal fecal waste
Turbidity	Soil runoff
Surface water treatment	
Giardia lamblia	Naturally present in the environment
Viruses	
Heterotrophic plate count bacteria	
Legionella	
Cryptosporidium	
Radioactive	
Gross Beta particle activity	Decay of natural and man-made deposits
Strontium-90	Decay of natural and man-made deposits
Tritium	Decay of natural and man-made deposits
Gross Alpha particle activity	Erosion of natural deposits
Combined Radium 226/228	Erosion of natural deposits
Total Radium (for nontransient noncommunity water systems)	Erosion of natural deposits
Uranium	Erosion of natural deposits
Inorganic	
Aluminum	Erosion of natural deposits; residue from some surface water treatment processes
Antimony	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Asbestos	Internal corrosion of asbestos cement water mains; erosion of natural deposits
Barium	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits

Beryllium	Discharge from metal refineries, coal-burning factories, and electrical, aerospace, and defense industries
Cadmium	Internal corrosion of galvanized pipes; erosion of natural deposits; discharge from electroplating and industrial chemical factories, and metal refineries; runoff from waste batteries and paints
Chromium (hexavalent)	Erosion of natural deposits; transformation of naturally occurring trivalent chromium to hexavalent chromium by natural processes and human activities such as discharges from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities.
Chromium (total)	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Copper	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Cyanide	Discharge from steel/metal, plastic and fertilizer factories
Fluoride	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Lead	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Mercury	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland
Nickel	Erosion of natural deposits; discharge from metal factories
Nitrate	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrite	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Perchlorate	Perchlorate is an inorganic chemical used in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries. It usually gets into drinking water as a result of environmental contamination from historic aerospace or other

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	industrial operations that used or use, store, or dispose of perchlorate and its salts.
Selenium	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
Thallium	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Synthetic organic	
2,4-D	Runoff from herbicide used on row crops, range land, lawns, and aquatic weeds
2,4,5-TP (Silvex)	Residue of banned herbicide
Acrylamide	Added to water during sewage/wastewater treatment
Alachlor	Runoff from herbicide used on row crops
Atrazine	Runoff from herbicide used on row crops and along railroad and highway right-of-ways
Bentazon	Runoff/leaching from herbicide used on beans, peppers, corn, peanuts, rice, and ornamental grasses
Benzo(a)pyrene [PAH]	Leaching from linings of water storage tanks and distribution mains
Carbofuran	Leaching of soil fumigant used on rice and alfalfa, and grape vineyards
Chlordane	Residue of banned insecticide
Dalapon	Runoff from herbicide used on right-of-ways, and crops and landscape maintenance
Dibromochloropropane (DBCP)	Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes, and tree fruit
Di(2-ethylhexyl) adipate	Discharge from chemical factories
Di(2-ethylhexyl) phthalate	Discharge from rubber and chemical factories; inert ingredient in pesticides
Dinoseb	Runoff from herbicide used on soybeans, vegetables, and fruits
Dioxin [2,3,7,8-TCDD]	Emissions from waste incineration and other combustion; discharge from chemical factories

Diquat	Runoff from herbicide use for terrestrial and aquatic weeds
Endothall	Runoff from herbicide use for terrestrial and aquatic weeds; defoliant
Endrin	Residue of banned insecticide and rodenticide
Epichlorohydrin	Discharge from industrial chemical factories; impurity of some water treatment chemicals
Ethylene dibromide (EDB)	Discharge from petroleum refineries; underground gas tank leaks; banned nematocide that may still be present in soils due to runoff and leaching from grain and fruit crops
Glyphosate	Runoff from herbicide use
Heptachlor	Residue of banned insecticide
Heptachlor epoxide	Breakdown of heptachlor
Hexachlorobenzene	Discharge from metal refineries and agricultural chemical factories; byproduct of chlorination reactions in wastewater
Hexachlorocyclopentadiene	Discharge from chemical factories
Lindane	Runoff/leaching from insecticide used on cattle, lumber, and gardens
Methoxychlor	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock
Molinate [Ordram]	Runoff/leaching from herbicide used on rice
Oxamyl [Vydate]	Runoff/leaching from insecticide used on field crops, fruits and ornamentals, especially apples, potatoes, and tomatoes
Pentachlorophenol	Discharge from wood preserving factories, cotton and other insecticidal/herbicidal uses
Picloram	Herbicide runoff
Polychlorinated biphenyls [PCBs]	Runoff from landfills; discharge of waste chemicals
Simazine	Herbicide runoff
Thiobencarb	Runoff/leaching from herbicide used on rice
Toxaphene	Runoff/leaching from insecticide used on cotton and cattle
1,2,3-Trichloropropane	Discharge from industrial and agricultural chemical factories; leaching from hazardous waste sites; used as cleaning and maintenance solvent, paint and varnish remover, and cleaning

	and degreasing agent; byproduct during the production of other compounds and pesticides.
Volatile organic	
Benzene	Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills
Carbon tetrachloride	Discharge from chemical plants and other industrial activities
1,2-Dichlorobenzene	Discharge from industrial chemical factories
1,4-Dichlorobenzene	Discharge from industrial chemical factories
1,1-Dichloroethane	Extraction and degreasing solvent; used in manufacture of pharmaceuticals, stone, clay and glass products; fumigant
1,2-Dichloroethane	Discharge from industrial chemical factories
1,1-Dichloroethylene	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene	Discharge from industrial chemical factories; major biodegradation byproduct of TCE and PCE groundwater contamination
trans-1,2-Dichloroethylene	Discharge from industrial chemical factories; minor biodegradation byproduct of TCE and PCE groundwater contamination
Dichloromethane	Discharge from pharmaceutical and chemical factories; insecticide
1,2-Dichloropropane	Discharge from industrial chemical factories; primary component of some fumigants
1,3-Dichloropropene	Runoff/leaching from nematocide used on croplands
Ethylbenzene	Discharge from petroleum refineries; industrial chemical factories
Methyl-tert-butyl ether (MTBE)	Leaking underground storage tanks; discharge from petroleum and chemical factories

Monochlorobenzene	Discharge from industrial and agricultural chemical factories and drycleaning facilities
Styrene	Discharge from rubber and plastic factories; leaching from landfills
1,1,2,2-Tetrachloroethane	Discharge from industrial and agricultural chemical factories; solvent used in production of TCE, pesticides, varnish and lacquers
Tetrachloroethylene (PCE)	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
1,2,4-Trichlorobenzene	Discharge from textile-finishing factories
1,1,1-Trichloroethane	Discharge from metal degreasing sites and other factories; manufacture of food wrappings
1,1,2-Trichloroethane	Discharge from industrial chemical factories
Trichloroethylene (TCE)	Discharge from metal degreasing sites and other factories
Toluene	Discharge from petroleum and chemical factories; underground gas tank leaks
Trichlorofluoromethane	Discharge from industrial factories; degreasing solvent; propellant and refrigerant
1,1,2-Trichloro-1,2,2- Trifluoroethane	Discharge from metal degreasing sites and other factories; drycleaning solvent; refrigerant
Vinyl chloride	Leaching from PVC piping; discharge from plastics factories; biodegradation byproduct of TCE and PCE groundwater contamination
Xylenes	Discharge from petroleum and chemical factories; fuel solvent

Disinfection Byproducts, Disinfection Byproduct Precursors, and Disinfectant Residuals	
Total trihalomethanes (TTHM)	Byproduct of drinking water disinfection
Haloacetic acids (five) (HAA5)	Byproduct of drinking water disinfection
Bromate	Byproduct of drinking water disinfection

Chloramines	Drinking water disinfectant added for treatment
Chlorine	Drinking water disinfectant added for treatment
Chlorite	Byproduct of drinking water disinfection
Chlorine dioxide	Drinking water disinfectant added for treatment
Control of disinfection byproduct precursors (Total Organic Carbon)	Various natural and manmade sources

Appendix 64481–B. Typical Origins of Contaminants with Secondary MCLs

Contaminant	*Major origins in drinking water*
Aluminum	Erosion of natural deposits; residual from some surface water treatment processes
Color	Naturally-occurring organic materials
Copper	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Foaming Agents (MBAS)	Municipal and industrial waste discharges
Iron	Leaching from natural deposits; industrial wastes
Manganese	Leaching from natural deposits
Methyl-tert-butyl ether (MTBE)	Leaking underground storage tanks; discharge from petroleum and chemical factories;
Odor—Threshold	Naturally-occurring organic materials
Silver	Industrial discharges
Thiobencarb	Runoff/leaching from rice herbicide
Turbidity	Soil runoff
Zinc	Runoff/leaching from natural deposits; industrial wastes
Total dissolved solids	Runoff/leaching from natural deposits
Specific Conductance	Substances that form ions when in water; seawater influence
Chloride	Runoff/leaching from natural deposits; seawater influence

Sulfate	Runoff/leaching from natural deposits; industrial wastes

§ 64482. Required Additional Health Information.

(a) A system that detects arsenic at levels above 0.005 mg/L, but below or equal to the MCL, shall include the following in its Consumer Confidence Report: "While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems."

(b) A system that detects nitrate at levels above 5 mg/L (as nitrogen), but below the MCL, shall include the following in its Consumer Confidence Report: "Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider." If a system cannot demonstrate to the State Board with at least five years of the most current monitoring data that its nitrate levels are stable, it shall also add the following language to the preceding statement on nitrate: "Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity."

(c) A system that detects lead above the action level in more than 5%, and up to and including 10%, of sites sampled, shall include the following in its Consumer Confidence Report: "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/or flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the USEPA Safe Drinking Water Hotline (1-800-426-4791)."

§ 64483. Consumer Confidence Report Delivery and Recordkeeping.

(a) Each water system shall mail or directly deliver one copy of the Consumer Confidence Report to each customer.

(b) The system shall make a good faith effort to reach consumers who are served by the water system but are not bill-paying customers, such as renters or workers, using a mix of methods appropriate to the particular system such as: Posting the Consumer Confidence Reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the Consumer Confidence Report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch

rooms of public buildings; delivery of multiple copies for distribution by single-biller customers such as apartment buildings or large private employers; and delivery to community organizations.

(c) No later than the date the water system is required to distribute the Consumer Confidence Report to its customers, each water system shall mail a copy of the report to the State Board, followed within 3 months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the State Board.

(d) No later than the date the water system is required to distribute the Consumer Confidence Report to its customers, each privately-owned water system shall mail a copy of the report to the California Public Utilities Commission.

(e) Each water system shall make its Consumer Confidence Report available to the public upon request.

(f) Each water system serving 100,000 or more persons shall post its current year's Consumer Confidence Report on a publicly-accessible site on the Internet.

(g) Each water system shall retain copies of its Consumer Confidence Reports for no less than 3 years.

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Chapter 15.5 Disinfectant Residuals, Disinfection Byproducts, And Disinfection Byproduct Precursors

Article 1. General Requirements and Definitions

§ 64530. Applicability of this Chapter.

(a) Community water systems and nontransient noncommunity water systems that treat their water with a chemical disinfectant in any part of the treatment process or which provide water that contains a chemical disinfectant shall comply with the requirements of this chapter beginning on the dates specified in paragraphs (1) or (2), except as provided for in subsections (c) and (d).

(1) Systems using approved surface water and serving 10,000 or more persons shall comply beginning January 1, 2002.

(2) Systems using approved surface water and serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water shall comply beginning January 1, 2004.

(b) Transient noncommunity water systems using chlorine dioxide shall comply with the requirements for chlorine dioxide in this chapter beginning on the dates specified in paragraphs (1) or (2).

(1) Systems using approved surface water and serving 10,000 or more persons shall comply beginning January 1, 2002.

(2) Systems using approved surface water and serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water shall comply beginning January 1, 2004.

(c) Community water systems, and nontransient noncommunity water systems serving at least 10,000 persons, using a primary or residual disinfectant other than ultraviolet light or delivering water that has been treated with a primary or residual disinfectant other than ultraviolet light shall comply with the Individual Distribution System Evaluation (IDSE) requirements of 40 Code of Federal Regulations, parts 141.600 and either 141.601 and 141.605, 141.602 and 141.605, 141.603, or 141.604 (71 Fed. Reg. 388 (January 4, 2006); as amended at 74 Fed. Reg. 30953 (June 29, 2009)), which are incorporated by reference.

(d) Community water systems and nontransient noncommunity water systems using a primary or residual disinfectant other than ultraviolet light or delivering water that has been treated with a primary or residual disinfectant other than ultraviolet light shall:

(1) Comply with the applicable TTHM and HAA5 compliance date in table 64530–A;

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Table 64530–A TTHM and HAA5 Compliance Dates

Systems of this type…		*Shall comply with TTHM and HAA5 monitoring pursuant to section 64534.2(d) by…*
(a) Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serving a population of…	(1) ≥100,000	April 1, 2012
	(2) 50,000–99,999	October 1, 2012
	(3) 10,000–49,999	October 1, 2013
	(4) <10,000	October 1, 2013, if no *Cryptosporidium* monitoring is required pursuant to 40 Code of Federal Regulations part 141.701(a)(4) (71 Fed. Reg. 654 (January 5, 2006)), which is incorporated by reference; or October 1, 2014, if *Cryptosporidium* monitoring is required pursuant to 40 Code of Federal Regulations part 141.701(a)(4) or (a)(6) (71 Fed. Reg. 654 (January 5, 2006)), which are incorporated by reference.
(b) Other consecutive or wholesale systems that are part of a combined distribution system		At the same time as the system with the earliest compliance date in the combined distribution system.

(2) Systems required to conduct quarterly monitoring for TTHM and HAA5 pursuant to section 64534.2(d) shall:

(A) Begin monitoring in the first full calendar quarter that includes the compliance date in table 64530–A; and

(B) Make compliance calculations at the end of the fourth calendar quarter that follows the compliance date in table 64530–A and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters).

(3) Systems required to conduct monitoring at a frequency that is less than quarterly shall:

(A) No later than 12 months after the compliance date in table 64530–A, begin monitoring in the calendar month recommended in the IDSE report prepared pursuant to section 64530(c) or the calendar month identified in the monitoring plan developed pursuant to section 64534.8; and

(B) Make compliance calculations beginning with the first compliance sample taken after the compliance date in table 64530–A.

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§ 64531. Definitions Governing Terms Used in this Chapter.

The definitions in sections 64400 through 64402.30 of chapter 15 and sections 64651.10 through 64651.93 of chapter 17 shall govern the interpretation of terms used in this chapter.

Article 2. Maximum Contaminant Levels for Disinfection Byproducts and Maximum Residual Disinfectant Levels

§ 64533. Maximum Contaminant Levels for Disinfection Byproducts.

(a) Using the monitoring and calculation methods specified in sections 64534, 64534.2, 64535, and 64535.2, the primary MCLs for the disinfection byproducts shown in table 64533–A shall not be exceeded in drinking water supplied to the public.

Table 64533–A
Maximum Contaminant Levels and Detection Limits for Purposes of Reporting Disinfection Byproducts

Disinfection Byproduct	*Maximum Contaminant Level (mg/L)*	*Detection Limit for Purposes of Reporting (mg/L)*
Total trihalomethanes (TTHM)	0.080	
Bromodichloromethane		0.0010
Bromoform		0.0010
Chloroform		0.0010
Dibromochloromethane		0.0010
Haloacetic acids (five) (HAA5)	0.060	
Monochloroacetic Acid		0.0020
Dichloroacetic Acid		0.0010
Trichloroacetic Acid		0.0010
Monobromoacetic Acid		0.0010
Dibromoacetic Acid		0.0010
Bromate	0.010	0.0050 0.0010[1]
Chlorite	1.0	0.020

[1] For analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0

(b) A system installing GAC, membranes, or other technology to limit disinfectant byproducts to comply with this section may apply to the State Board for an extension up to December 31, 2003. Applications for extensions shall include the results of disinfection byproduct monitoring, a description of the technology being installed and how it is expected to affect future disinfection byproduct levels, and a proposed schedule for compliance. If granted an extension, a system shall meet the schedule and interim treatment and monitoring requirements established by the State Board.

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(c) The best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for disinfection byproducts are identified in table 64533–B.

Table 64533–B Best Available Technology Disinfection Byproducts

Disinfection Byproduct	*Best Available Technology*
TTHM and HAA5	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant[1] For all systems that disinfect their source water: (1) Enhanced coagulation or enhanced softening, plus GAC10; (2) Nanofiltration with a molecular weight cutoff ≤1000 Daltons; or (3) GAC20[2] For consecutive systems and applies only to the disinfected water that consecutive systems buy or otherwise receive:[2] (1) Systems serving ≥10,000 persons: improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance; and (2) Systems serving <10,000 persons: improved distribution system and storage tank management to reduce residence time
Bromate	Control of ozone treatment process to reduce production of bromate
Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels

[1] When using the monitoring and calculation methods specified in sections 64534, 64534.2(a), 64535, and 64535.2(a) and (b).

[2] When using the monitoring and calculation methods specified in sections 64534, 64534.2(d), 64535, and 64535.2(a) and (e).

§ 64533.5. Maximum Residual Disinfectant Levels.

(a) Using the monitoring and calculation methods specified in sections 64534, 64534.4, 64535, and 64535.4, the MRDLs for the disinfectants shown in table 64533.5–A shall not be exceeded in drinking water supplied to the public.

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Table 64533.5–A Maximum Residual Disinfectant Level

Disinfectant Residual	*MRDL (mg/L)*
Chlorine	4.0 (as Cl_2)
Chloramines	4.0 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

(b) Notwithstanding subsection (a), systems may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system in excess of the levels specified in table 64533.5–A in order to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to*,* distribution line breaks, storm run-off events, source water contamination events, natural disasters, or cross-connection events. In such circumstances, systems shall immediately notify the State Board of the source and cause of contamination, the levels of residual disinfectant, other actions being taken to correct the problem, and the expected duration of the exceedance.

(c) The best technologies, treatment techniques, or other means available for achieving compliance with the maximum residual disinfectant levels in this section are control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

Article 3. Monitoring Requirements

§ 64534. General Monitoring Requirements.

(a) Except as provided in subsection (b), analyses required pursuant to this chapter shall be performed by laboratories certified by the State Board to perform such analyses pursuant to Article 3, commencing with section 100825, of Chapter 4 of Part 1 of Division 101, Health and Safety Code. Unless otherwise directed by the State Board, analyses shall be made in accordance with U.S. EPA approved methods as prescribed in 40 Code of Federal Regulations, part 141.131 (63 Fed. Reg. 69390 (December 16, 1998), as amended at 66 Fed. Reg. 3770 (January 16, 2001), 71 Fed. Reg. 388 (January 4, 2006), 71 Fed. Reg. 37168 (June 29, 2006), and 74 Fed. Reg. 30953 (June 29, 2009)), which are incorporated by reference.

(b) Sample collection, and field tests including pH, alkalinity, and chlorine, chloramines, and chlorine dioxide residual disinfectants, shall be performed by personnel trained to perform such sample collections and/or tests by:

(1) The State Board;

(2) A laboratory certified pursuant to subsection (a); or

(3) An operator, certified by the State Board pursuant to section 106875(a) or (b) of the Health and Safety Code and trained by an entity in paragraph (1) or (2) to perform such sample collections and/or tests.

(c) Systems shall take all samples during normal operating conditions, which exclude those circumstances covered under section 64533.5(b).

(d) A system may apply to the State Board for approval to consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required under section 64534.2(a). In order to qualify for this reduction in monitoring requirements a system shall demonstrate to the State Board that the multiple wells produce water from the same aquifer. To make this demonstration, a system shall submit information to the State Board regarding the location, depth, construction, and geologic features of each well, and water quality information for each well. The State Board will use this information to determine whether the wells produce water from a single aquifer.

(e) Systems shall use only data collected under the provisions of this chapter to qualify for reduced monitoring pursuant to this article.

(f) Systems that fail to monitor shall be in violation of the monitoring requirements for the entire monitoring period that a monitoring result would be used in calculating compliance with MCLs or MRDLs, and shall notify the public pursuant to sections 64463, 64463.7, and 64465, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6.

(g) Systems that fail to monitor in accordance with the monitoring plan required by section 64534.8 shall be in violation of the monitoring requirements, and shall notify the public pursuant to sections 64463, 64463.7, and 64465, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6.

§ 64534.2. Disinfection Byproducts Monitoring.

(a) Community and nontransient noncommunity water systems shall monitor for TTHM and HAA5 at the frequencies and locations indicated in table 64534.2–A.

Table 64534.2–A Routine and Increased Monitoring Frequency for TTHM and HAA5

COLUMN A *Type of System*	*COLUMN B* *Persons Served*	*COLUMN C* *Minimum monitoring frequency*	*COLUMN D* *Sample location in the distribution system & increased monitoring frequencies*
Systems using approved surface water	≥10,000	Four samples per quarter per treatment plant	At least 25 percent of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods[1].

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	500–9,999	One sample per quarter per treatment plant	Locations representing maximum residence time[1].
	< 500	One sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time[1]. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system shall increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in paragraph (3) of this subsection.
Systems using only ground water not under direct influence of surface water and using chemical disinfectant	≥10,000	One sample per quarter per treatment plant	Locations representing maximum residence time[1].
	<10,000	One sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time[1]. If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system shall increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in paragraph (3) of this subsection.

[1] If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) shall be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples shall be taken at locations representative of at least average residence time in the distribution system.

(1) Systems may apply to the State Board to monitor at a reduced frequency in accordance with table 64534.2–B. The application shall include the results of all TOC, TTHM, and HAA5 monitoring conducted in the previous 12 months and the proposed revised monitoring plan as required by section 64534.8. The State Board will evaluate data submitted with the application to determine whether or not the system is eligible for the reduced monitoring specified in table 64534.2–B;

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Table 64534.2–B Reduced Monitoring Frequency for TTHM and HAA5

If the system is a(n) ...	*serving...*	*the system may reduce monitoring if it has monitored at least one year and...*	*to this level*
Approved surface water system which has a source water TOC[1] level, before any treatment, ≤ 4.0 mg/L	≥10,000	TTHM[1] ≤0.040 mg/L and HAA5[1] ≤0.030 mg/L	One sample per treatment plant per quarter at distribution system location reflecting maximum residence time.
	500–9,999	TTHM[1] ≤0.040 mg/L and HAA5[1] ≤0.030 mg/L	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.
System using only ground water not under direct influence of surface water and using chemical disinfectant	≥10,000	TTHM[1] ≤0.040 mg/L and HAA5[1] ≤0.030 mg/L	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.
	<10,000	TTHM[1] ≤0.040 mg/L and HAA5[1] ≤0.030 mg/L for two consecutive years OR TTHM[1] ≤0.020 mg/L and HAA5[1] ≤0.015 mg/L for one year	One sample per treatment plant per three-year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following the quarter in which system qualifies for reduced monitoring.

[1] TOC, TTHM, and HAA5 values based on manual averages.

(2) Systems on reduced monitoring shall resume monitoring at the frequency specified in column C of table 64534.2–A in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for the TTHM annual average, 0.045 mg/L for the HAA5 annual average, or 4.0 mg/L for the source water TOC annual average. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons or for systems using approved surface water and serving fewer than 500 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system shall go to increased monitoring identified in column D of table 64534.2–A in the quarter immediately following the quarter in which the system exceeds 0.080 mg/L or 0.060 mg/L for the TTHM and HAA5 annual averages, respectively; and

(3) Systems on increased monitoring pursuant to column D of table 64534.2–A may return to routine monitoring specified in column C of table 64534.2–A if, after at least one year of monitoring, TTHM annual average is ≤0.060 mg/L and HAA5 annual average is ≤0.045 mg/L.

(b) Community and nontransient noncommunity water systems using chlorine dioxide shall conduct monitoring for chlorite as follows:

(1) Systems shall take daily samples at the entrance to the distribution system and analyze the samples the same day the samples are taken. For any daily sample that exceeds the chlorite MCL, the system shall take three additional chlorite distribution system samples the following day (in addition to the daily sample required at the entrance to the distribution system) at these locations: as close to the first customer as possible, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. The system shall analyze the additional samples within 48 hours of being notified pursuant to section 64537(b) of the exceedance;

(2) Systems shall take a three-sample set each month in the distribution system. The system shall take one sample at each of the following locations: as close to the first customer as possible, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling shall be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under paragraph (1) to meet the monitoring requirement in this paragraph;

(3) Systems may apply to the State Board to reduce monthly chlorite monitoring in the distribution system pursuant to paragraph (2) to one three-sample set per quarter after one year of monitoring during which no individual chlorite sample taken in the distribution system has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring under paragraph (1). The application shall include the results of all chlorite monitoring conducted in the previous 12 months and the proposed revised monitoring plan as required by section 64534.8. The State Board will evaluate data submitted with the application and determine whether or not the system is eligible to reduce monitoring to one three-sample set per quarter. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under paragraph (2) exceeds

the chlorite MCL or the system is required to conduct additional monitoring under paragraph (1), at which time the system shall revert to routine monitoring; and

(4) If a distribution system sample taken pursuant to paragraph (2) exceeds the chlorite MCL, the system shall take and analyze a confirmation sample within 48 hours of being notified pursuant to section 64537(c) of the exceedance. If the system fails to take a confirmation sample pursuant to this paragraph, it shall take and analyze a confirmation sample within two weeks of notification of the results of the first sample.

(c) Community and nontransient noncommunity systems using ozone shall monitor for bromate as follows:

(1) Systems shall take one sample per month for each treatment plant in the system using ozone. Samples shall be taken at the entrance to the distribution system while the ozonation system is operating under normal conditions;

(2) Systems may reduce bromate monitoring from monthly to once per quarter, if the system's running annual average bromate concentration is ≤0.0025 mg/L based on monthly bromate measurements under paragraph (1) for the most recent four quarters, with samples analyzed using Method 317.0 Revision 2.0, 321.8, or 326.0. The system shall notify the State Board in writing within 30 days of the change in monitoring frequency; and

(3) Systems shall resume routine bromate monitoring pursuant to paragraph (1) and notify the State Board in writing within 30 days of the change in monitoring frequency if the running annual average bromate concentration, computed quarterly, is greater than 0.0025 mg/L.

(d) By the applicable date specified in section 64530(d), and in lieu of TTHM and HAA5 monitoring in subsection (a):

(1) Community and nontransient noncommunity water systems shall monitor for TTHM and HAA5 at the frequencies and location totals indicated in table 64534.2–C and in accordance with the monitoring plan developed pursuant to section 64534.8;

Table 64534.2–C Routine Monitoring Frequency for TTHM and HAA5

		Minimum monitoring frequency[1]	
Source water type	*Persons served*	*Number of distribution system monitoring locations*	*Monitoring period*[2]
Systems using approved surface water	≥5,000,000	20 dual sample sets	per quarter
	1,000,000–4,999,999	16 dual sample sets	per quarter
	250,000–999,999	12 dual sample sets	per quarter
	50,000–249,999	8 dual sample sets	per quarter
	10,000–49,999	4 dual sample sets	per quarter
	3,301–9,999	2 dual sample sets	per quarter
	500–3,300	1 TTHM and 1 HAA5 sample: one at the location	per quarter

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		with the highest TTHM measurement, one at the location with the highest HAA5 measurement	
	<500	1 TTHM and 1 HAA5 sample: one at the location with the highest TTHM measurement, one at the location with the highest HAA5 measurement[3]	per year
Systems using ground water not under direct influence of surface water	≥500,000	8 dual sample sets	per quarter
	100,000–499,999	6 dual sample sets	per quarter
	10,000–99,999	4 dual sample sets	per quarter
	500–9,999	2 dual sample sets	per year
	<500	1 TTHM and 1 HAA5 sample: one at the location with the highest TTHM measurement, one at the location with the highest HAA5 measurement[3]	per year

[1] All systems shall monitor during the month of highest disinfection byproduct concentrations.
[2] Systems on quarterly monitoring shall take dual sample sets every 90 days at each monitoring location, except for systems using approved surface water and serving 500–3,300 persons.
[3] Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location and month.

(2) Undisinfected systems that begin using a disinfectant other than UV light after the applicable dates in 40 Code of Federal Regulations, part 141.600 (71 Fed. Reg. 388 January 4, 2006), which is incorporated by reference, shall consult with the State Board to identify compliance monitoring locations for this subsection. Systems shall then develop a monitoring plan in accordance with section 64534.8 that includes those monitoring locations;

(3) Systems may apply to the State Board to monitor at a reduced frequency in accordance with table 64534.2–D, any time the LRAA is ≤0.040 mg/L for TTHM and ≤0.030 mg/L for HAA5 at all monitoring locations. In addition, the source water annual average TOC level, before any treatment shall be ≤4.0 mg/L at each treatment plant treating approved surface water, based on source water TOC monitoring conducted pursuant to section 64534.6. The application shall include the results of all TOC, TTHM, and HAA5 monitoring conducted in the previous 12 months and the proposed revised monitoring plan as required by section 64534.8. The State Board will evaluate data submitted with the application to determine whether or not the system is eligible for the reduced monitoring specified in table 64534.2–D;

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Table 64534.2–D Reduced Monitoring Frequency for TTHM and HAA5

Minimum monitoring frequency

Source water type	*Persons served*	*Number of distribution system monitoring locations*	*Monitoring period*[1]
Systems using approved surface water	≥5,000,000	10 dual sample sets: at the locations with the five highest TTHM and five highest HAA5 LRAAs	per quarter
	1,000,000–4,999,999	8 dual sample sets: at the locations with the four highest TTHM and four highest HAA5 LRAAs	per quarter
	250,000–999,999	6 dual sample sets: at the locations with the three highest TTHM and three highest HAA5 LRAAs	per quarter
	50,000–249,999	4 dual sample sets: at the locations with the two highest TTHM and two highest HAA5 LRAAs	per quarter
	10,000–49,999	2 dual sample sets: at the locations with the highest TTHM and highest HAA5 LRAAs	per quarter
	3,301–9,999	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement	per year
	500–3,300	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements	per year

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		occurred at the same location and quarter	
Systems using only ground water not under direct influence of surface water	≥500,000	4 dual sample sets: at the locations with the two highest TTHM and two highest HAA5 LRAAs	per quarter
	100,000–499,999	2 dual sample sets: at the locations with the highest TTHM and highest HAA5 LRAAs	per quarter
	10,000–99,999	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement	per year
	500–9,999	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter	per year
	<500	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set every third year if the highest TTHM and HAA5 measurements occurred at the same location and quarter	every third year

[1] Systems on quarterly monitoring shall take dual sample sets every 90 days.

(4) Systems on reduced monitoring shall resume routine monitoring pursuant to table 64534.2–C or conduct increased monitoring pursuant to paragraph (5) (if applicable), if the TTHM LRAA is >0.040 mg/L or the HAA5 LRAA is >0.030 mg/L at any monitoring location (for systems with quarterly reduced monitoring); a TTHM sample is >0.060 mg/L or a HAA5 sample is >0.045 mg/L (for systems with annual or less frequent monitoring); or the source water annual average TOC level, before any treatment, is >4.0 mg/L at any treatment plant treating an approved surface water;

(5) Systems that are required to monitor at a particular location annually or less frequently than annually pursuant to table 64534.2–C or 64534.2–D shall increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample is >0.080 mg/L or a HAA5 sample is >0.060 mg/L at any location. Systems on increased monitoring may return to routine monitoring specified in table 64534.2–C if, after at least four consecutive quarters of monitoring, the LRAA for every monitoring location is ≤0.060 mg/L for TTHM and ≤0.045 mg/L for HAA5;

(6) If the operational evaluation level (OEL) exceeds 0.080 mg/L for TTHM or 0.060 mg/L for HAA5 at any monitoring location, systems shall conduct an operational evaluation. The operational evaluation shall include the examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances. Systems that are able to identify the cause of the OEL exceedance may submit a written request to the State Board to limit the scope of the evaluation. The request to limit the scope of the evaluation shall not extend the schedule in section 64537(d) for submitting the written report to the State Board;

(7) Systems on reduced monitoring pursuant to table 64534.2–B may remain on reduced monitoring after the applicable date in table 64530–A for compliance with this subsection provided the system meets IDSE requirements under section 64530(c) by qualifying for a 40/30 certification (40 CFR part 141.603) or receiving a very small system waiver (40 CFR part 141.604), meets the reduced monitoring criteria in paragraphs (3) and (4), and does not change or add monitoring locations from those used for compliance monitoring under subsection (a); and

(8) Systems on increased monitoring pursuant to table 64534.2–A shall remain on increased monitoring and conduct increased monitoring pursuant to paragraph (5) at the locations in the monitoring plan developed under section 64534.8 beginning at the applicable date in table 64530–A for compliance with this subsection. Systems on increased monitoring may return to routine monitoring specified in table 64534.2–C pursuant to paragraph (5).

§ 64534.4. Disinfectant Residuals Monitoring.

(a) Community and nontransient noncommunity water systems that use chlorine or chloramines shall measure the residual disinfectant levels at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in sections 64423, 64424, and 64425. Systems using approved surface water may use the

results of residual disinfectant concentration sampling conducted under section 64656, in lieu of taking separate samples.

(b) Public water systems that use chlorine dioxide shall monitor for chlorine dioxide daily at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system shall take three chlorine dioxide distribution system samples the following day, as follows:

(1) If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system shall take three samples as close to the first customer as possible, at intervals of at least six hours; and

(2) If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system shall take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the furthest customer as possible (reflecting maximum residence time in the distribution system).

§ 64534.6. Disinfection Byproduct Precursors Monitoring.

(a) Systems that use approved surface water and conventional filtration treatment (as defined in section 64651.23) shall take one paired TOC sample (source water and treated water) and one source water alkalinity sample per month per treatment plant at a time representative of normal operating conditions and influent water quality. TOC and alkalinity in the source water shall be monitored prior to any treatment and at the same time as TOC monitoring in the treated water. TOC in the treated water shall be monitored no later than the point of combined filter effluent turbidity monitoring and shall be representative of the treated water.

(b) Systems using approved surface water with an annual average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system shall revert to monitoring pursuant to subsection (a) in the first month following the quarter that the annual average treated water TOC is equal to or greater than 2.0 mg/L.

(c) Systems using approved surface water and not monitoring pursuant to subsection (a) or (b):

(1) To qualify for reduced TTHM and HAA5 monitoring pursuant to table 64534.2–B or 64534.2–D, shall take monthly TOC samples every 30 days at a location prior to any treatment; and

(2) Once qualified for reduced TTHM and HAA5 monitoring pursuant to table 64534.2–B or 64534.2–D, may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment. The system shall revert to source water TOC monitoring pursuant to paragraph (1) in the first month following the quarter that the annual average source water TOC is greater than 4.0 mg/L.

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§ 64534.8. Monitoring Plans.

(a) A system shall develop and submit to the State Board a monitoring plan. The system shall implement the plan after State Board review and approval. The system shall maintain the plan and make it available for inspection by the general public no later than 30 days following the applicable compliance date in sections 64530(a) or (b), and (d).

(b) The State Board will evaluate the plan based on the following required elements:

(1) Specific locations and schedules for collecting samples for any parameters included in this chapter, including seasonal variations if applicable;

(2) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques; and

(3) For compliance monitoring pursuant to section 64534.2(d), monitoring dates and the elements specified in paragraphs (1) and (2).

(c) Systems that submitted an IDSE report pursuant to section 64530(c) shall monitor for TTHM and HAA5 under section 64534.2(d) at the locations and months recommended in the IDSE report, unless the State Board requires other locations or additional locations after its review of the IDSE report.

(d) Systems not required to submit an IDSE report pursuant to section 64530(c) and that:

(1) Do not have sufficient TTHM and HAA5 compliance monitoring locations under section 64534.2(a) to identify the required number of TTHM and HAA5 compliance monitoring locations indicated in 40 Code of Federal Regulations part 141.605(b) (71 Fed. Reg. 388 (January 4, 2006)), as amended at 74 Fed. Reg. 30953 (June 29, 2009)), which is incorporated by reference, shall:

(A) Identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified; and

(B) Provide the rationale in the plan for identifying the locations as having high levels of TTHM or HAA5.

(2) Have more TTHM and HAA5 compliance monitoring locations under section 64534.2(a) than required for TTHM and HAA5 compliance monitoring indicated in 40 Code of Federal Regulations part 141.605(b) (71 Fed. Reg. 388 (January 4, 2006)), as amended at 74 Fed. Reg. 30953 (June 29, 2009)), which is incorporated by reference, shall identify the locations to use by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified.

(e) The plan developed for compliance monitoring pursuant to section 64534.2(d) may be revised to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for State Board-approved reasons, after consultation with the State Board regarding the need for changes and the appropriateness of changes. Systems shall comply with the requirements of subsection (a) for the revised plan. If monitoring locations are changed, systems shall replace existing compliance monitoring locations having the lowest LRAA with new locations that reflect the current distribution system locations having expected high TTHM or HAA5 levels.

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Article 4. Compliance Requirements

§ 64535. General Requirements for Determining Compliance.

(a) All samples taken and analyzed in accordance with section 64534.8 shall be included in determining compliance, pursuant to sections 64535.2, 64535.4, and 64536.4.

(b) For violations of the MCLs in section 64533 or MRDLs in section 64533.5 that may pose an acute risk to human health, notification shall be pursuant to sections 64463, 64463.1, and 64465.

§ 64535.2. Determining Disinfection Byproducts Compliance.

(a) During the first year of monitoring for disinfection byproducts under sections 64534.2(a), (b), and (c), the system shall comply with paragraphs (1) through (3). During the first year of monitoring for TTHM and HAA5 under section 64534.2(d), the system shall comply with paragraphs (1) through (3) at each monitoring location:

(1) The sum of the first quarter's results, divided by four, shall not exceed the MCLs specified in section 64533.

(2) The sum of the first and second quarter's results, divided by four, shall not exceed the MCLs specified in section 64533.

(3) The sum of the first, second, and third quarter's results, divided by four, shall not exceed the MCLs specified in section 64533.

(b) TTHM and HAA5 MCL compliance, as monitored pursuant to section 64534.2(a), shall be determined as follows:

(1) For systems monitoring quarterly, the running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected pursuant to section 64534.2(a) shall not exceed the MCLs specified in section 64533;

(2) For systems monitoring less frequently than quarterly, the average of samples collected that calendar year pursuant to section 64534.2(a) shall not exceed the MCLs specified in section 64533. If the average of the samples collected under section 64534.2(a) exceeds the MCL, the system shall increase monitoring to once per quarter per treatment plant. Compliance with the MCL shall then be determined by the average of the sample that triggered the quarterly monitoring and the following three quarters of monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation immediately. After monitoring quarterly for four consecutive quarters (including the quarter that triggered the quarterly monitoring), and until such time as monitoring returns to routine monitoring pursuant to section 64534.2(a)(3), compliance shall be determined pursuant to paragraph (1);

(3) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to sections 64463, 64463.4, and 64465, including language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6; and

(4) If a public water system fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(c) Compliance for bromate shall be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by section 64534.2(c). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to sections 64463, 64463.4, and 64465, including language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6. If a public water system fails to complete 12 consecutive months of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(d) Compliance for chlorite shall be based on the results of samples collected by the system pursuant to section 64534.2(b).

(1) If any daily sample taken at the entrance to the distribution system exceeds the chlorite MCL and one (or more) of the three samples taken in the distribution system pursuant to section 64534.2(b)(1) exceeds the chlorite MCL, the system is in violation of the MCL and shall take immediate corrective action to reduce the concentration of chlorite to a level below the MCL. The system shall notify the State Board within 48 hours of the determination and notify the public pursuant to the procedures for acute health risks in sections 64463, 64463.1, and 64465, including language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6. Failure to take samples in the distribution system the day following an exceedance of the chlorite MCL at the entrance to the distribution system is also an MCL violation and the system shall notify and report as described in this paragraph;

(2) If the average of an individual sample from the three-sample set taken pursuant to section 64534.2(b)(2) and its confirmation sample taken pursuant to section 64634.2(b)(4) exceeds the chlorite MCL, the system is in violation of the MCL and shall take the corrective action and notify and report as described in paragraph (1). If the average of the individual sample and its confirmation does not exceed the MCL, the system shall inform the State Board of the results within seven days from receipt of the original analysis. Failure to take a confirmation sample pursuant to section 64534.2(b)(4) is also an MCL violation and the system shall notify and report as described in paragraph (1); and

(3) If any two consecutive daily samples taken at the entrance to the distribution system exceed the chlorite MCL and all distribution system samples taken pursuant to section 64534.2(b)(1) are less than or equal to the chlorite MCL, the system is in violation of the MCL and shall take corrective action to reduce the concentration of chlorite to a level below the MCL at the point of sampling. The system shall notify the public pursuant to the procedures for nonacute health risks in sections 64463, 64463.4, and 64465, including the language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorite MCL

at the entrance to the distribution system is also an MCL violation and the system shall notify and report as described in this paragraph.

(e) TTHM and HAA5 MCL compliance, as monitored pursuant to section 64534.2(d), shall be determined as follows:

(1) For systems monitoring quarterly, each locational running annual average (LRAA), computed quarterly, shall not exceed the MCLs specified in section 64533;

(2) For systems monitoring annually or less frequently, each sample collected shall not exceed the MCLs specified in section 64533. If no sample exceeds the MCL, the sample result for each monitoring location shall be considered the LRAA for the monitoring location. If any sample exceeds the MCL, systems shall increase monitoring pursuant to section 64534.2(d)(5). Compliance with the MCL shall then be determined by the average of the sample that triggered the quarterly monitoring and the following three quarters of monitoring, unless the result of fewer than four quarters of monitoring will cause the LRAA to exceed the MCL, in which case the system is in violation immediately. After monitoring quarterly for four consecutive quarters (including the quarter that triggered the quarterly monitoring), and until such time as monitoring returns to routine monitoring pursuant to section 64534.2(d)(5), compliance shall be determined pursuant to paragraph (1);

(3) If a system fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data. If more than one sample per quarter is taken at a monitoring location, all the samples taken in the quarter at that monitoring location shall be averaged to determine a quarterly average to be used in the LRAA calculation; and

(4) If the LRAA exceeds the MCL, calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters), the system is in violation of the MCL and shall notify the public pursuant to sections 64463, 64463.4, and 64465, including the language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6.

§ 64535.4. Determining Disinfectant Residuals Compliance.

(a) During the first year of monitoring for disinfection residuals under section 64534.4 the system shall comply with the following:

(1) The sum of the first quarter's results, divided by four, shall not exceed the MRDLs specified in section 64533.5;

(2) The sum of the first and second quarter's results, divided by four, shall not exceed the MRDLs specified in section 64533.5; and

(3) The sum of the first, second, and third quarter's results, divided by four, shall not exceed the MRDLs specified in section 64533.5.

(b) Chlorine and chloramines MRDL compliance is determined as follows:

(1) Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under section 64534.4(a). If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and shall notify the public pursuant to sections 64463, 64463.4, and 64465, including language in appendix 64465–G, in

addition to reporting to the State Board pursuant to sections 64537 through 64537.6; and

(2) In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance shall be determined by including together all monitoring results of both chlorine and chloramines. Reports submitted pursuant to sections 64537 through 64537.6 shall clearly indicate which residual disinfectant was analyzed for each sample.

(c) Compliance for chlorine dioxide shall be based on consecutive daily samples collected by the system under section 64534.4(b).

(1) If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to reduce the concentration of chlorine dioxide to a level below the MRDL. The system shall notify the State Board within 48 hours of the determination, notify the public pursuant to the procedures for acute health risks in sections 64463, 64463.1, and 64465, including language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system shall notify and report as described in this paragraph;

(2) If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are less than or equal to the MRDL, the system is in violation of the MRDL and shall take corrective action to reduce the concentration of chlorine dioxide to a level below the MRDL at the point of sampling. The system shall notify the public pursuant to the procedures for nonacute health risks in sections 64463, 64463.4. and 64465, including language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at this site is also an MRDL violation and the system shall notify and report as described in this paragraph.

Article 5. Treatment Technique for Control of Disinfection Byproduct Precursors (DBPP)

§ 64536. Alternative Compliance Criteria to the Enhanced Coagulation and Enhanced Softening Performance Requirements.

(a) Systems using approved surface water and conventional filtration treatment shall meet any one of the alternative compliance criteria in paragraphs (1) through (6) to comply with this article or comply with the requirements of section 64536.2. Systems that meet one of the criteria in paragraphs (1) through (6) shall still comply with monitoring requirements in section 64534.6.

(1) The system's source water TOC level is less than 2.0 mg/L, calculated quarterly as a running annual average.

(2) The system's treated water TOC level is less than 2.0 mg/L, calculated quarterly as a running annual average.

(3) The system's source water TOC level is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity is greater than 60 mg/L (as $CaCO_3$), calculated quarterly as a running annual average; and either

(A) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or

(B) Prior to the applicable compliance date in section 64530(a) or (b), the system has applied to the State Board for the approval of, and committed funds to the installation of, technologies that will limit the levels of TTHM and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. The application to the State Board shall include a description of the technology to be installed, evidence of a commitment to complete the installation, such as a signed contract, bid solicitation, or approved bond measure, and a schedule containing milestones and periodic progress reports for installation and operation of the technology. These technologies shall be installed and operating not later than June 30, 2005.

(4) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

(5) The system's source water SUVA, prior to any treatment and measured monthly, is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(6) The system's finished water SUVA, measured monthly, is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(b) Systems using approved surface water and conventional filtration treatment and practicing softening that cannot achieve the TOC removal required by section 64536.2(a) shall meet any one of the criteria in paragraphs (1) through (2) below or any one of the criteria in section 64536(a), paragraphs (1) through (6) to comply with this article. Systems that meet one of the criteria in paragraphs (1) through (2) below or one of the criteria in section 64536(a), paragraphs (1) through (6) shall still comply with the monitoring requirements in section 64534.6.

(1) Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as $CaCO_3$), measured monthly and calculated quarterly as a running annual average; or

(2) Softening that results in removing at least 10 mg/L of magnesium hardness (as $CaCO_3$), measured monthly and calculated quarterly as an annual running average.

§ 64536.2. Enhanced Coagulation and Enhanced Softening Performance Requirements.

(a) Systems using approved surface water and conventional filtration treatment (as defined in section 64651.23) shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in this section, unless the system meets at least one of the alternative compliance criteria listed in section 64536(a) or (b).

(b) Systems shall achieve the Step 1 percent reduction of TOC specified in table 64536.2–A between the source water and the combined filter effluent, unless the State

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Board approves a system's request for alternate minimum TOC removal (Step 2) requirements under subsection (c). Systems practicing softening shall meet the Step 1 TOC removals in the far-right column (Source water alkalinity >120 mg/L) of table 64536.2–A for the specified source water TOC:

Table 64536.2–A
Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening Systems Using Conventional Treatment [1, 2]

Source-Water TOC, mg/L	*Required Removal of TOC Source-Water Alkalinity, mg/L as $CaCO_3$*		
	0-60	*>60-120*	*>120*
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1] Systems that meet one of the criteria in section 64536(a), paragraphs (1) through (6) do not have to operate with enhanced coagulation.
[2] Softening systems that meet one of the criteria in section 64536(b), paragraphs (1) through (2) do not have to operate with enhanced softening.

(c) Systems using approved surface water and conventional treatment that cannot achieve the Step 1 TOC removals required by subsection (b) due to water quality parameters or operational constraints shall apply to the State Board, within three months of failure to achieve the TOC removals required by subsection (b), for approval of Step 2 removal requirements. If the State Board approves the Step 2 removal requirements pursuant to subsection (d), and the system conducted monthly TOC monitoring beginning one year prior to the compliance date specified in section 64530, the Step 2 removal requirements will be retroactive to the compliance date for the purposes of determining compliance.

(d) Applications made to the State Board by systems using enhanced coagulation for approval of Step 2 removal requirements under subsection (c) shall include, as a minimum, results of bench-scale or pilot-scale testing conducted under paragraph (1) of this subsection that were used to determine the alternate enhanced coagulation level.

(1) Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in paragraphs (1) through (4) such that an incremental addition of 10 mg/L of alum (or equivalent addition of iron coagulant) results in a TOC removal of <0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the Step 2 removal requirement for the system. Once approved by the State Board, this Step 2 removal requirement supersedes the minimum TOC removal required by section 64536.2(b). This requirement shall be effective until such time as the State Board approves a new value based on the results of a new bench-scale or pilot-scale test.

(2) Bench-scale or pilot-scale testing of enhanced coagulation shall be conducted by using representative water samples and adding 10 mg/L increments of alum (or

equivalent addition of iron coagulant) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in table 64536.2–B.

Table 64536.2–B Enhanced Coagulation Step 2 Target pH

Alkalinity mg/L as $CaCO_3$	*Target pH*
0–60	5.5
>60–120	6.3
>120–40	7.0
>240	7.5

(3) For waters with alkalinities of less than 60 mg/L for which the addition of small amounts of alum (or equivalent addition of iron coagulant) drives the pH below 5.5 before significant TOC removal occurs, the system shall add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached.

(4) If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the system is eligible to apply for a waiver of enhanced coagulation requirements. The application shall include, as a minimum, the results of bench-scale or pilot-scale testing conducted under paragraph (1) of this subsection.

§ 64536.4. Disinfection Byproduct Precursor Compliance Calculations.

(a) Systems not meeting any of the criteria identified in sections 64536(a) or (b) shall comply with requirements contained in sections 64536.2(a) or (b) and shall calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

(1) Determine actual monthly TOC percent removal, equal to: (1 - [treated water TOC/source water TOC]) x 100.

(2) Determine the required monthly TOC percent removal (from either table 64536.2–A or from section 64536.2(c)).

(3) Divide the value in paragraph(a)(1) by the value in paragraph(a)(2).

(4) Add together the results of paragraph(a)(3) for the last 12 months and divide by 12.

(5) If the value calculated in paragraph(a)(4) is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(b) In any month that one or more of the conditions of sections 64536.4(b)(1) through (b)(6) are met, the system may assign a monthly value of 1.0 (in lieu of the value calculated in section 64536.4(a)(3)) when calculating compliance under the provisions of subsection (a).

(1) The system's source water TOC level, prior to any treatment, is less than or equal to 2.0 mg/L.

(2) The system's treated water TOC level is less than or equal to 2.0 mg/L.

(3) The system's source water SUVA, prior to any treatment, is less than or equal to 2.0 L/mg-m.

(4) The system's finished water SUVA is less than or equal to 2.0 L/mg-m.

(5) A system practicing softening removes at least 10 mg/L of magnesium hardness (as $CaCO_3$).

(6) A system practicing enhanced softening lowers alkalinity below 60 mg/L (as $CaCO_3$).

§ 64536.6. Disinfection Byproduct Precursors Public Notification Requirements.

For systems using conventional treatment, enhanced coagulation or enhanced softening are identified as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems. If a system fails to comply with the enhanced coagulation or enhanced softening requirements established in this article, the system shall notify the public pursuant to sections 64463, 64463.4, and 64465, including language in appendix 64465–G, in addition to reporting to the State Board pursuant to sections 64537 through 64537.6.

Article 6. Reporting and Recordkeeping Requirements

§ 64537. General Reporting and Recordkeeping Requirements.

(a) Systems required to sample quarterly or more frequently, pursuant to section 64534.2, 64534.4, or 64534.6, shall report to the State Board within 10 days after the end of each quarter in which samples were collected according to section 64469(c), notwithstanding the provisions of sections 64469(a) and (b). Systems required to sample less frequently than quarterly shall report to the State Board within 10 days after the end of each quarter in which samples were collected. Systems shall report information to the State Board in conformance with the requirements of sections 64537.2, 64537.4, and 64537.6.

(b) Systems shall require the laboratory to notify the system the same day samples are taken and analyzed whenever the level of chlorite in an entrance to the distribution system sample taken pursuant to section 64534.2(b)(1) exceeds the chlorite MCL or the level of chlorine dioxide in an entrance to the distribution system sample taken pursuant to section 64534.4(b) exceeds the chlorine dioxide MRDL, and shall ensure that a contact person is available to receive the analytical results 24-hours a day.

(c) Systems shall require the laboratory to notify the supplier within 48 hours whenever the level of chlorite in a single distribution system sample taken pursuant to section 64534.2(b)(1) or (b)(2) exceeds the chlorite MCL or the level of chlorine dioxide in a single distribution system sample taken pursuant to section 64534.4(b) exceeds the chlorine dioxide MRDL, and shall ensure that a contact person is available to receive such analytical results 24-hours a day. The system shall also require the laboratory to immediately notify the State Board of any chlorite MCL or chlorine dioxide MRDL exceedance if the laboratory cannot make direct contact with the designated contact person within 48 hours.

(d) Systems required to conduct an operational evaluation pursuant to section 64534.2(d)(6) shall submit a written report of the evaluation to the State Board no later than 90 days after being notified of the analytical result that caused the OEL exceedance. Systems shall make the written report available to the public upon request.

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If the State Board approves the system's written request to limit the scope of the evaluation under section 64534.2(d)(6), the system shall keep the written approval with the completed report.

(e) Systems shall retain monitoring plans and records of chemical analyses in accordance with section 64470.

§ 64537.2. Disinfection Byproducts Reporting.

Systems shall report to the State Board the information specified in tables 64537.2–A and 64537.2–B.

Table 64537.2–A Disinfection Byproducts Reporting

If the system is monitoring under the requirements of section 64534.2(a), (b), or (c) for...		*The system shall report...*
TTHM and HAA5	(a) on a quarterly or more frequent basis	(1) The number of samples taken during the last quarter; (2) The location, date, and result of each sample taken during the last quarter; (3) The arithmetic average of all samples taken in the last quarter; (4) The annual arithmetic average of the quarterly arithmetic averages of the samples for the last four quarters; and (5) Whether, based on section 64535.2(b), the MCL was violated.
	(b) less frequently than quarterly (but at least annually)	(1) The number of samples taken during the last year; (2) The location, date, and result of each sample taken during the last monitoring period; (3) The arithmetic average of all samples taken over the last year; and (4) Whether, based on section 64535.2(b), the MCL was violated.
	(c) less frequently than annually	(1) The location, date, and result of the last sample taken; and (2) Whether, based on section 64535.2(b), the MCL was violated.
Chlorite		(1) The number of entry point samples taken each month for the last 3 months; (2) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter; (3) If a confirmation sample is taken pursuant to section 64634.2(b)(4), the average of an individual sample and its confirmation sample; and

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	(4) Whether, based on section 64535.2(d), the MCL was violated, in which month it was violated, and how many times it was violated in each month.
Bromate	(1) The number of samples taken during the last quarter; (2) The location, date, and result of each sample taken during the last quarter; (3) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year; and (4) Whether, based on section 64535.2(c), the MCL was violated.

Table 64537.2–B TTHM and HAA5 Reporting

If the system is monitoring under the requirements of section 64534.2(d) for...	*The system shall report…*
TTHM and HAA5	(a) For each monitoring location: (1) The number of samples taken during the last quarter; (2) The date and results of each sample taken during the last quarter; (3) The arithmetic average of quarterly results for the last four quarters (LRAA); (4) Whether the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters; (5) Whether, based on section 64535.2(e), the MCL was violated at any monitoring location; and (6) Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels. (b) For a supplier using approved surface water and seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, source water TOC information for each treatment plant that treats approved surface water: (1) The number of source water TOC samples taken each month during the last quarter; (2) The date and result of each sample taken during the last quarter; (3) The quarterly average of monthly samples taken during the last quarter or the result of the quarterly sample; and

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	(4) The running annual average (RAA) of quarterly averages from the past four quarters; and
	(5) Whether the RAA exceeded 4.0 mg/L.

§ 64537.4. Disinfectants Reporting.

Systems shall report to the State Board the information specified in table 64537.4–A

Table 64537.4–A
Disinfectants Reporting

If the system is monitoring under the requirements of section 64534.4 for...	*The system shall report...*
Chlorine or chloramines	(1) The number of samples taken during each month of the last quarter.
	(2) The monthly arithmetic average of all samples taken in each month for the last 12 months.
	(3) The arithmetic average of all monthly averages for the last 12 months.
	(4) Whether, based on section 64535.4(b), the MRDL was violated.
Chlorine dioxide	(1) The dates, results, and locations of samples taken during the last quarter.
	(2) Whether, based on section 64535.4(c), the MRDL was violated.
	(3) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

§ 64537.6. Disinfection Byproduct Precursors and Enhanced Coagulation or Enhanced Softening Reporting.

(a) Systems required to meet the enhanced coagulation or enhanced softening requirements in section 64536.2(a) or (b) shall report the following:

(1) The number of paired (source water and treated water) samples taken during the last quarter.

(2) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.

(3) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.

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(4) Calculations for determining compliance with the TOC percent removal requirements, as provided in section 64536.4(a).

(5) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in section 64536.2 for the last four quarters.

(b) Systems meeting one or more of the alternative compliance criteria in section 64536(a) or (b), in lieu of meeting the requirements in section 64536.2(a) or (b), shall report the following:

(1) The alternative compliance criterion that the system is using.

(2) The number of paired samples taken during the last quarter.

(3) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.

(4) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in sections 64536(a)(1) or (3) or of treated water TOC for systems meeting the criterion in section 64536(a)(2).

(5) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in section 64536(a)(5) or of treated water SUVA for systems meeting the criterion in section 64536(a)(6).

(6) The running annual average of source water alkalinity for systems meeting the criterion in section 64536(a)(3) and of treated water alkalinity for systems meeting the criterion in section 64536(b)(1).

(7) The running annual average for both TTHM and HAA5 for systems meeting the criterion in section 64536(a)(3) or (4).

(8) The running annual average of the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in section 64536(b)(2).

(9) Whether the system is in compliance with the particular alternative compliance criterion in section 64536(a) or (b).

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Chapter 16. California Waterworks Standards

Article 1. Definitions

§ 64551.10. Distribution Reservoir.

"Distribution reservoir" means any tank or other structure located within or connected to the distribution system and used to store treated/finished drinking water.

§ 64551.20. Distribution System.

"Distribution system" means all physical parts of the water system, including, but not limited to: Pipes, valves, pumping stations, storage tanks or reservoirs, and user service lines, that are located between the water treatment plant, or the source if there is no treatment, and the consumer's service connection.

§ 64551.30. Maximum Day Demand (MDD).

"Maximum day demand (MDD)" means the amount of water utilized by consumers during the highest day of use (midnight to midnight), excluding fire flow, as determined pursuant to Section 64554.

§ 64551.35. Peak Hour Demand (PHD).

"Peak hour demand (PHD)" means the amount of water utilized by consumers during the highest hour of use during the maximum day, excluding fire flow, as determined pursuant to Section 64554.

§ 64551.40. Source Capacity.

"Source capacity" means the total amount of water supply available, expressed as a flow, from all active sources permitted for use by the water system, including approved surface water, groundwater, and purchased water.

§ 64551.60. User Service Line.

"User service line" means the pipe, tubing, and fittings connecting a water main to an individual water meter or service connection.

§ 64551.70. Water Main.

"Water main" means any pipeline, except for user service lines, within the distribution system.

Article 1.5. Waivers and Alternatives

§ 64551.100. Waivers and Alternatives.

(a) A water system that proposes to use an alternative to a requirement in this chapter shall:

(1) Demonstrate to the State Board that the proposed alternative would provide at least the same level of protection to public health; and

(2) Obtain written approval from the State Board prior to implementation of the alternative.

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Article 2. Permit Requirements

§ 64552. Initial Permit for Public Water System.

(a) Each public water system applying for an initial domestic public water system permit shall submit an application that includes:

(1) A map and description of the entire existing and proposed service area, showing:

(A) The location of each water source, as well as wells that are abandoned, out-of-service, destroyed, standby, or inactive (not physically connected to the water system), together with:

1. Any valid water rights owned by the system for surface water sources, including information on any limitations or restrictions of those rights;

2. For a groundwater aquifer, the groundwater levels and drawdown patterns;

3. Permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin;

4. Existing and planned source pumping capability and distribution storage capacity for the system as a whole and for each pressure zone;

5. The calculated sustained well yields of existing wells if groundwater sources are used;

6. Permits for any waters proposed for use to offset potable water demand; and

(B) Treatment facilities and pumping plants;

(C) Distribution system piping, pressure zones, hydropneumatic tanks, and reservoirs;

(D) Valves, sample taps, and other system appurtenances;

(E) Recycled water and sewage systems;

(F) Conveyance facilities;

(G) Any flood plains in the projected service area; and

(H) The 100 year flood or highest recorded flood level, whichever is higher.

(2) The population, and number and type of residential, commercial, agricultural, and industrial service connections, in the system's projected service area;

(3) Design drawings of proposed facilities drawn to scale, showing location, size, and construction material;

(4) As-built drawings of existing facilities, drawn to scale, showing location, size, construction materials, and year of installation of any water main or other facility that has already been constructed;

(5) The estimated MDD and PHD with the methods, assumptions, and calculations used for the estimations;

(6) A source water assessment and description of each source of water proposed for use to meet the estimated MDD and information demonstrating that the sources are adequate to do so, such as, but not limited to, well pump tests, the capacities of all pumping facilities, and the hydraulic capacity of surface water treatment facilities,

(A) If the system plans to use surface water, the system shall demonstrate that it holds a valid water right to that amount of water including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(B) If groundwater is to be used, the system shall demonstrate that the groundwater aquifer is sufficient, or in the case of adjudicated groundwater basins, that approval has

been obtained to allow that amount of sustained withdrawal including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(C) If purchased water is to be used, the system shall provide contracted amount and the hydraulic capacity at each turnout and any allowable reductions or limitations on its availability, as stated in the purchased water contract; and

(7) Information that demonstrates how the system proposes to reliably meet four hours of PHD using, but not limited to, available source capacity and distribution reservoirs.

(b) The information in subsection (a) shall be prepared by a professional civil engineer registered in the State of California with experience in water supply engineering.

§ 64554. New and Existing Source Capacity.

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(1) For systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency source connections.

(2) For systems with less than 1,000 service connections, the system shall have storage capacity equal to or greater than MDD, unless the system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement.

(3) Both the MDD and PHD requirements shall be met in the system as a whole and in each individual pressure zone.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

(1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.

(2) If no daily water usage data are available and monthly water usage data are available:

(A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation;

(B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5; and

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(3) If only annual water usage data are available:

(A) Identify the year with the highest water usage during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its years of operation;

(B) To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(4) If no water usage data are available, utilize records from a system that is similar in size, elevation, climate, demography, residential property size, and metering to determine the average water usage per service connection. From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.

(c) Community water systems using only groundwater shall have a minimum of two approved sources before being granted an initial permit. The system shall be capable of meeting MDD with the highest-capacity source off line.

(d) A public water system shall determine the total capacity of its groundwater sources by summing the capacity of its individual active sources. If a source is influenced by concurrent operation of another source, the total capacity shall be reduced to account for such influence. Where the capacity of a source varies seasonally, it shall be determined at the time of MDD.

(e) The capacity of a well shall be determined from pumping data existing prior to March 9, 2008, or in accordance with subsection (f) or (g). Prior to conducting a well capacity test pursuant to subsection (g), a system shall submit the information listed below to the State Board for review and approval. For well capacity tests conducted pursuant to subsection (f), the information shall be submitted to the State Board if requested by the State Board.

(1) The name and qualifications of the person who will be conducting the test;

(2) The proposed test's pump discharge rate, based on the design rate determined during well development and/or a step-drawdown test.

(3) A copy of a United States Geological Survey 7 ½-minute topographic map of the site at a scale of 1:24,000 or larger (1 inch equals 2,000 feet or 1 inch equals less than 2,000 feet) or, if necessary, a site sketch at a scale providing more detail, that clearly indicates;

(A) The well discharge location(s) during the test, and

(B) The location of surface waters, water staff gauges, and other production wells within a radius of 1000 feet;

(4) A well construction drawing, geologic log, and electric log, if available;

(5) Dates of well completion and well development, if known;

(6) Specifications for the pump that will be used for the test and the depth at which it will draw water from the well;

(7) A description of the methods and equipment that will be used to measure and maintain a constant pumping rate;

(8) A description of the water level measurement method and measurement schedule;

(9) For wells located in or having an influence on the aquifer from which the new well will draw water, a description of the wells' operating schedules and the estimated amount of groundwater to be extracted, while the new well is tested and during normal operations prior to and after the new well is in operation;

(10) A description of the surface waters, water staff gauges, and production wells shown in (3)(B);

(11) A description of how the well discharge will be managed to ensure the discharge doesn't interfere with the test;

(12) A description of how the initial volume of water in the well's casing, or bore hole if there is no casing at the time, will be addressed to ensure it has no impact on the test results; and

(13) A written description of the aquifer's annual recharge.

(f) To determine the capacity of a well drilled in alluvial soils when there is no existing data to determine the capacity, a water system shall complete a constant discharge (pumping rate) well capacity test and determine the capacity as follows:

(1) Take an initial water level measurement (static water level) and then pump the well continuously for a minimum of eight hours, maintaining the pump discharge rate proposed in subsection (e)(2);

(2) While pumping the well, take measurements of the water level drawdown and pump discharge rates for a minimum of eight hours at a frequency no less than every hour;

(3) Plot the drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis;

(4) Steady-state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in the plot developed pursuant to subsection (3). If steady-state is not achieved, the pump discharge rate shall be continued for a longer period of time or adjusted, with paragraphs (2) and (3) above repeated, until steady-state is achieved.

(5) Discontinue pumping and take measurements of the water level drawdown no less frequently than every 15 minutes for the first two hours and every hour thereafter for at least six hours or until the test is complete; and

(6) To complete the test, the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent.

(7) The capacity of the well shall be the pump discharge rate determined by a completed test.

(g) The capacity of a well whose primary production is from a bedrock formation, such that the water produced is yielded by secondary permeability features (e.g., fractures or cracks), shall be determined pursuant to either paragraph (1) or (2) below.

(1) The public water system shall submit a report, for State Board review and approval, proposing a well capacity based on well tests and the evaluation and management of the aquifer from which the well draws water. The report shall be prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist. Acceptance of the proposed well capacity by the State Board shall, at a minimum, be based on the State Board's review and approval of the following information presented in the report in support of the proposed well capacity:

(A) The rationale for the selected well test method and the results;

(B) The geological environment of the well;

(C) The historical use of the aquifer;

(D) Data from monitoring of other local wells;

(E) A description of the health risks of contaminants identified in a source water assessment, as defined in section 64401.57 of Title 22, and the likelihood of such contaminants being present in the well's discharge;

(F) Impacts on the quantity and quality of the groundwater;

(G) How adjustments were made to the estimated capacity based on drawdown, length of the well test, results of the wells test, discharge options, and seasonal variations and expected use of the well; and

(H) The well test(s) results and capacity analysis.

(2) During the months of August, September, or October, conduct either a 72-hour well capacity test or a 10-day well capacity test, and determine the well capacity using the following procedures:

(A) Procedures for a 72 hour well capacity test:

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 72 hours starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pump discharge rate:

a. Every thirty minutes during the first four hours of pumping,

b. Every hour for the next four hours, and

c. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(B) Procedures for a 10 day well capacity test:

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 10 days starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pumping rate:

a. Every thirty minutes during the first four hours of pumping,
b. Every hour for the next four hours,
c. Every eight hours for the remainder of the first four days,
d. Every 24 hours for the next five days, and
e. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(C) To complete either the 72-hour or 10-day well capacity test the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined pursuant to subsection (g)(2) using the proposed pump rate. To demonstrate meeting the recovery criteria, the following water level data in the well shall be measured, recorded, and compared with the criteria:

1. Every 30 minutes during the first four hours after pumping stops,
2. Hourly for the next eight hours, and
3. Every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to a at least ninety-five percent of the total drawdown measured during the test, which ever occurs first.

(D) Following completion of a 72-hour or 10-day well capacity test, the well shall be assigned a capacity no more than:

1. For a 72-hour test, 25 percent of the pumping rate at the end of a completed test's pumping.
2. For a 10-day test, 50 percent of the pumping rate at the end a completed test's pumping.

(h) The public water system shall submit a report to the State Board that includes all data and observations associated with a well capacity test conducted pursuant to subsection (f) or (g), as well as the estimated capacity determination methods and calculations. The data collected during pumping and recovery phases of the well capacity tests shall be submitted in an electronic spreadsheet format in both tabular and graphic files.

(i) An assigned well capacity may be revised by the State Board if pumping data collected during normal operations indicates that the assigned well capacity was not representative of the actual well capacity.

(j) If directed by the State Board to do so, based on adverse conditions that may lead or may have led to a regional aquifer's inability to meet a water system's demand on such an aquifer, the water system shall submit a report to the State Board that includes regional aquifer recharge estimates and a water balance analysis. The report shall be prepared and signed by a California registered geologist with at least three years of

experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist.

(k) The source capacity of a surface water supply or a spring shall be the lowest anticipated daily yield based on adequately supported and documented data.

(l) The source capacity of a purchased water connection between two public water systems shall be included in the total source capacity of the purchaser if the purchaser has sufficient storage or standby source capacity to meet user requirements during reasonable foreseeable shutdowns by the supplier.

§ 64556. Permit Amendments.

(a) An application for an amended domestic water supply permit shall be submitted to the State Board prior to any of the following:

(1) Addition of a new distribution reservoir (100,000 gallon capacity or greater) to the distribution system;

(2) Modification or extension of an existing distribution system using an alternative to the requirements in this chapter;

(3) Modification of the water supply by:

A. Adding a new source;

B. Changing the status of an existing source (e.g., active to standby); or

C. Changing or altering a source, such that the quantity or quality of supply could be affected;

(4) Any addition or change in treatment, including:

A. Design capacity; or

B. Process;

(5) Expansion of the existing service area (by 20% or more of the number of service connections specified in the most recent permit or permit amendment);

(6) Consolidation with one or more other water systems;

(7) Change in regulatory jurisdiction;

(8) Change in type of public water system;

(9) Obtaining a water quality standard exemption from the State Board;

(10) Obtaining a secondary standard waiver from the State Board;

(11) Proposal for modifications of existing recreational uses on a water supply reservoir;

(12) Request for a hand washing exclusion by a transient noncommunity water system, pursuant to section 116282 of the Health and Safety Code; or

(13) Proposal for offsetting domestic water needs with an unapproved water supply.

(b) A water system shall submit an application to the State Board if it has been notified by the State Board that changes to the water system require an amended permit based on the State Board's review of system operations, source type and capacity, geographical location, system size, and distribution system complexity.

(c) Except as set forth in subsections (a) and (b) any modifications or extensions to an existing distribution system may be made without applying for and receiving an amended domestic water supply permit provided the modifications comply with all of the requirements of this chapter.

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§ 64558. Source Capacity Planning Study.

(a) If directed by the State Board to do so based on its determination that there is an existing or potential problem with the system's source capacity or a proposed expansion pursuant to section 64556(a)(5), a water system shall submit a Source Capacity Planning Study (Study) containing the following information:

(1) The anticipated growth of the water system over a projected period of at least ten years in terms of the population and number and type of residential, commercial, and industrial service connections to be served by the water system.

(2) Estimates of the amount of water needed to meet the total annual demand and the MDD over the projected ten-year growth period (projected system demand). Methods, assumptions, and calculations used to estimate the projected system demand shall be included.

(3) A map and description of the entire existing and proposed service area, showing:

(A) The location of each water source, including wells that are abandoned, out-of-service, destroyed, standby, or inactive;

1. Any valid water rights owned by the system for surface water sources, including information on any limitations or restrictions of those rights;

2. For a groundwater aquifer, the groundwater levels and drawdown patterns;

3. Permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin;

4. Existing and planned source pumping capability and distribution storage capacity for the system as a whole and for each pressure zone;

5. The calculated sustained well yields of existing wells if groundwater sources are used;

6. Permits, if required, for any waters proposed for use to offset potable water demand; and

7. A Source Water Assessment for each potable water source.

(B) Distribution system piping, pressure zones, hydropneumatic tanks, and reservoirs;

(C) Valves, sample taps, flow meters, unmetered service connections, and other system appurtenances;

(D) Conveyance facilities;

(E) Any flood plains in the projected service area; and

(F) The 100 year flood or highest recorded flood level, whichever is higher.

(b) If directed by the State Board to do so based on its determination that a study is out of date, a water system shall update and submit the Study to the State Board.

(c) Water systems that have submitted an Urban Water Management Plan to the Department of Water Resources pursuant to Water Code Part 2.6 commencing with section 10610, may submit a copy of that report in lieu of some or all of the requirements of subsection (a) to the extent such information is included in the plan.

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Article 3. Water Sources

§ 64560. New Well Siting, Construction, and Permit Application.

(a) To receive a new or amended domestic water supply permit for a proposed well, the water system shall provide the following information to the State Board in the technical report as part of its permit application:

(1) A source water assessment as defined in Section 64401.57 for the proposed site;

(2) Documentation demonstrating that a well site control zone with a 50-foot radius around the site can be established for protecting the source from vandalism, tampering, or other threats at the site by water system ownership, easement, zoning, lease, or an alternative approach approved by the State Board based on its potential effectiveness in providing protection of the source from contamination;

(3) Design plans and specifications for the well; and

(4) Documentation required for compliance with the California Environmental Quality Act (CEQA).

(b) After the State Board has provided written or oral approval of the initial permit amendment application and the water system has constructed the well, the water system shall submit the following additional materials for its permit application:

(1) A copy of the well construction permit if required by the county or local agency;

(2) Department of Water Resources well completion report;

(3) A copy of any pump tests required by the State Board;

(4) Results of all required water quality analyses; and

(5) As-built plans.

(c) Each new public water supply well shall:

(1) As a minimum, be constructed in accordance with the community water system well requirements in California Department of Water Resources Bulletins 74-81 and 74-90, which are hereby incorporated by reference;

(2) Be constructed in accordance with American Water Works Association (AWWA) Standard A100-06 (Water Wells), which is hereby incorporated by reference;

(3) Be installed such that:

(A) All equipment is accessible for operation, maintenance, and removal;

(B) Protection is provided against flooding;

(C) The wellhead terminates a minimum of 18 inches above the finished grade;

(D) Wellhead and electrical controls are not installed in vaults;

(E) The well is equipped with:

1. Fittings and electrical connections to enable chlorination facilities to be readily installed;

2. A non-threaded down-turned sampling tap located on the discharge line between the wellhead and the check valve. Sampling taps used for obtaining samples for bacteriological analysis shall not have a screen, aerator, or other such appurtenance;

(F) Provisions are made to allow the well to be pumped to waste with a waste discharge line that is protected against backflow.

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§ 64560.5. Well Destruction.

Destruction of a public drinking water supply well shall be in accordance with the California Department of Water Resources Bulletins 74-81 and 74-90.

§ 64561. Source Flow Meters.

Each water system shall:

(a) Except for inactive sources, install a flow meter at a location between each water source and the entry point to the distribution system;

(b) Meter the quantity of water flow from each source, and record the total monthly production each month.

Article 4. Materials and Installation of Water Mains and Appurtenances

§ 64570. Materials and Installation.

(a) All newly installed water mains shall comply with the materials and installation standards of the American Water Works Association pursuant to tables 64570–A and 64570–B. The standards are hereby incorporated by reference.

Table 64570–A Materials Standards for Water Mains

Type of Material	*Diameter of Main*	*Applicable Standard*
PVC	4 in. through 12 in.	C900-97
PVC	14 in. through 48 in.	C905-97
Polyethylene (HDPE)	4 in. through 63 in.	C906-99
Fiberglass	All sizes	C950-01
Ductile Iron	All sizes	C150/A21.50-02
Ductile Iron, Centrifugally cast	All sizes	C151/A21.51-02
Steel	6 inches and larger	C200-97
Copper	All sizes	C800-05
Concrete		
Reinforced steel-cylinder	All sizes	C300-04
Prestressed steel-cylinder	All sizes	C301-99, C304-99
Reinforced noncylinder	All sizes	C302-04
Bar wrapped/steel cylinder	All sizes	C303-02
PVC, Molecularly oriented polyvinyl chloride	All sizes	C909-02

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Table 64570–B Installation Standards for Water Mains

Type of Installation	*Applicable Standard*
Steel Pipe-Design and Installation	M-11 (2004)
Ductile-Iron Water Mains and Their Appurtenances	C600-05
Underground Installation of PVC Pressure Pipe and Fittings	C605-05
Concrete Pressure Pipe	M9(1995)

(b) Water mains shall:
(1) Be installed below the frost line or be otherwise protected to prevent freezing; and
(2) Be protected against crushing under loads that could pass above the installation.

§ 64572. Water Main Separation.

(a) New water mains and new supply lines shall not be installed in the same trench as, and shall be at least 10 feet horizontally from and one foot vertically above, any parallel pipeline conveying:
(1) Untreated sewage,
(2) Primary or secondary treated sewage,
(3) Disinfected secondary-2.2 recycled water (defined in section 60301.220),
(4) Disinfected secondary-23 recycled water (defined in section 60301.225), and
(5) Hazardous fluids such as fuels, industrial wastes, and wastewater sludge.

(b) New water mains and new supply lines shall be installed at least 4 feet horizontally from, and one foot vertically above, any parallel pipeline conveying:
(1) Disinfected tertiary recycled water (defined in section 60301.230), and
(2) Storm drainage.

(c) New supply lines conveying raw water to be treated for drinking purposes shall be installed at least 4 feet horizontally from, and one foot vertically below, any water main.

(d) If crossing a pipeline conveying a fluid listed in subsection (a) or (b), a new water main shall be constructed no less than 45-degrees to and at least one foot above that pipeline. No connection joints shall be made in the water main within eight horizontal feet of the fluid pipeline.

(e) The vertical separation specified in subsections (a), (b), and (c) is required only when the horizontal distance between a water main and pipeline is less than ten feet.

(f) New water mains shall not be installed within 100 horizontal feet of the nearest edge of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or within 25 horizontal feet of the nearest edge of any cesspool, septic tank, sewage leach field, seepage pit, underground hazardous material storage tank, or groundwater recharge project site.

(g) The minimum separation distances set forth in this section shall be measured from the nearest outside edge of each pipe barrel.

(h) With State Board approval, newly installed water mains may be exempt from the separation distances in this section, except subsection (f), if the newly installed main is:
(1) less than 1320 linear feet,

(2) replacing an existing main, installed in the same location, and has a diameter no greater than six inches more than the diameter of the main it is replacing, and

(3) installed in a manner that minimizes the potential for contamination, including, but not limited to:

(A) sleeving the newly installed main, or

(B) utilizing upgraded piping material.

§ 64573. Minimum Water Main Size for Community Water Systems.

Newly installed water mains in a community water system shall have a nominal diameter of at least four inches.

§ 64575. Flushing.

(a) A flushing valve or blowoff shall be provided at the end of each newly installed dead-end water main. Fire hydrants meeting the criteria of this section may be considered flushing valves.

(b) Flushing valves and blowoffs shall not discharge to a sanitary sewer without an air gap separation between the sewer and the valve or blowoff.

(c) The flushing velocity in the main shall not be less than 2.5 ft/s unless it is determined that conditions do not permit the required flow to be discharged to waste.

(d) Newly installed flushing valves and blowoffs shall be designed to maintain the minimum continuous flushing flows as indicated below to produce a minimum velocity of 2.5ft/s in commonly used sizes of pipe.

Table 64575–A. Minimum Flushing Flows for Different Size Water Mains.

Nominal Main Size *Diameter (inches)*	Minimum Flushing Flow *(gallons per minute)*
2	25
3	50
4	100
6	225
8	400
10	600
12	900
14	1200
16	1600

§ 64576. Air-Release, Air Vacuum, and Combination Valves.

Each new air-release, air vacuum, or combination valve, and any such valve installed to replace an existing valve shall be:

(a) Installed such that its vent opening is above grade, above the calculated 100-year flood water level, and, if recorded data are available, above the highest recorded water level;

(b) Readily accessible for inspection, maintenance and replacement;

(c) Constructed and designed to prevent exposure to rainwater or runoff, vandalism, and birds, insects, rodents, or other animals;

(d) Fitted with a downward-facing screened vent or a domed and screened cap; and

(e) Installed pursuant to American Water Works Association Standard C512-04 and Manual M51 (2001), which are hereby incorporated by reference.

§ 64577. Isolation Valves.

As a minimum, isolation valves shall be installed on all new water mains within the distribution system as follows:

(a) No farther than 1,320 linear feet apart on all mains having a diameter of 12 inches or less.

(b) At each tee or crossing connection between mains that have a diameter of 12 inches or less, within 100 feet of the tee or crossing connection with the primary main.

(c) Between the water main and each fire hydrant served by the main.

§ 64578. Water Main Valve Construction.

Newly installed valves constructed on water mains shall comply with the following:

(a) A valve box shall be installed over each buried valve stem to aid in locating and operating the valve.

(b) For valves buried in trenches greater than five feet below the finished grade, either a valve stem riser to permit the use of a normal key or a notation on valve records indicating that a long key will be required shall be provided.

Article 5. Disinfection Requirements

§ 64580. Disinfection of New or Repaired Mains.

Prior to use, newly installed water mains, or water mains that have been taken out of service for maintenance or repair, shall be disinfected and sampled for bacteriological quality in accordance with American Water Works Association Standard C651-05, which is hereby incorporated by reference. Samples from new mains shall be negative for coliform bacteria prior to the new main(s) being placed into service.

§ 64582. Disinfection of Reservoirs.

A newly-installed distribution reservoir or distribution reservoir that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with the American Water Works Association Standard C652-02, which is hereby incorporated by reference. If the results of the bacteriological sampling are positive for coliform bacteria, the reservoir shall be resampled for bacteriological quality and the test results shall be submitted to the State Board for review and approval before the reservoir is placed into service.

§ 64583. Disinfection of Wells.

A new or repaired well, or a well that has not been in operation for more than three months shall be sampled for bacteriological quality prior to use. If the results of the bacteriological sampling are positive for coliform bacteria, the well shall be disinfected in accordance with the American Water Works Association C654-03, which is hereby incorporated by reference, and resampled for bacteriological quality and the test results shall be submitted to the State Board for review and approval before the well is placed into service.

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Article 6. Distribution Reservoirs

§ 64585. Design and Construction.

(a) Each distribution reservoir shall meet the following:

(1) Any reservoir coatings or linings shall be installed in accordance with manufacturer's instructions;

(2) Vents and other openings shall be constructed and designed to prevent the entry of rainwater or runoff, and birds, insects, rodents, or other animals;

(3) At least one sampling tap shall be available to enable representative sampling of the water in the reservoir that will be entering the distribution system; the tap shall be protected against freezing, if necessary; and

(4) A reservoir shall not be designed, constructed, or used for any activity that creates a contamination hazard.

(b) The water supplier shall submit to the State Board for review the design drawings and specifications for each proposed distribution reservoir prior to its construction. Each new distribution reservoir shall be:

(1) If it is a tank, constructed in accordance with American Water Works Association (AWWA) standards, which are hereby incorporated by reference, as follows: AWWA D100-05 (Welded Carbon Steel Tanks for Water Storage), D102-03 (Coating Steel Water-Storage Tanks), D103-97 (Factory-Coated Bolted Steel Tanks for Water Storage), D110-04 (Wire-and Strand-Wound, Circular, Prestressed Concrete Water Tanks), and D120-02 (Thermosetting Fiberglass-Reinforced Plastic Tanks);

(2) Constructed of an impervious material that prevents the movement of water into or out of the reservoir;

(3) Covered with

(A) A rigid structural roof made of impervious material that prevents the movement of water or other liquids into or out of the reservoir; or

(B) A floating cover designed, constructed, and maintained in conformance with the AWWA California-Nevada Section's "Reservoir Floating Cover Guidelines" (April 1999), AWWA Manual M25 (2000), and AWWA D130-02 (Flexible-Membrane Materials for Potable Water Applications), which are hereby incorporated by reference.

(4) Equipped with at least one separate inlet and outlet (internal or external), and designed to minimize short-circuiting and stagnation of the water flow through the reservoir;

(5) Equipped with drainage facilities that allow the tank to be drained and all residual sediment removed, and an overflow device. The reservoir drainage facilities and overflow device shall not be connected directly to a sewer or storm drain and shall be free of cross-connections;

(6) Equipped with controls to maintain and monitor reservoir water levels;

(7) Equipped to prevent access by unauthorized persons;

(8) Designed to allow authorized access and adequate lighting of reservoir interior for inspections, cleaning or repair;

(9) Equipped with isolation valves, and designed and operated to allow continued distribution of water when the reservoir is removed from service. The isolation valves shall be located within 100 feet of the reservoir. For a reservoir used to meet the

disinfectant contact time requirements of chapter 17 (Surface Water Treatment), bypass lines shall be blind-flanged closed during normal operations;

(10) Designed and constructed to prevent the entry of surface runoff, subsurface flow, or drainage into the reservoir;

(11) Designed to prevent corrosion of the interior walls of the reservoir;

(12) For a subsurface reservoir,

(A) Protected against flooding (both reservoir and vents);

(B) Equipped with underdrain facilities to divert any water in proximity to the reservoir away from the reservoir;

(C) Sited a minimum of 50 feet horizontally from a sanitary sewer and 100 feet horizontally from any other waste facilities and any force main;

(D) Constructed so as to have the reservoir bottom located above the highest anticipated groundwater level, based on a site investigation that includes actual measurements of the groundwater level during peak rainfall periods; extraction wells shall not be used to influence the highest anticipated groundwater level;

(E) Provided with a minimum of two groundwater level monitoring wells drilled to a depth at least 20 feet below the reservoir bottom and sited within 100 feet and on opposite sides (upgradient and downgradient) of the reservoir; and

(F) If the roof is to be buried and have a function (e.g., recreation, landscape, parking) in addition to covering the reservoir:

1. Designed and constructed pursuant to AWWA D110-04 (Wire- Strand-Wound, Circular, Prestressed Concrete Water Tanks), which is hereby incorporated by reference;

2. Equipped with an impervious connection, such as a pvc waterstop, between the wall and buried roof; and

3. Watertight, sloped for drainage and coated with a damp proofing material.

Article 7. Additives

§ 64590. Direct Additives.

No chemical or product shall be added to drinking water by a water supplier unless the chemical or product is certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 60-2005 (Drinking Water Treatment Chemicals—Health Effects), which is hereby incorporated by reference. Certification shall be from an ANSI accredited product certification organization whose certification system includes, as a minimum, the following criteria for ensuring the chemical or product meets NSF/ANSI Standard 60.

(a) Annual product testing,

(b) Annual facility inspections,

(c) Annual quality assurance and quality control review,

(d) Annual manufacturing practice reviews, and

(e) Annual chemical stock inspections.

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§ 64591. Indirect Additives.

(a) Except as provided in Section 64593 or where a more stringent statutory requirement exists, after March 9, 2008, a water system shall not use any chemical, material, lubricant, or product in the production, treatment or distribution of drinking water that will result in its contact with the drinking water including process media (carbon, sand), protective materials (coatings, linings, liners), joining and sealing materials (solvent cements, welding materials, gaskets, lubricating oils), pipes and related products (pipes, tanks, fittings), and mechanical devices used in treatment/transmission/distribution systems (valves, chlorinators, separation membranes) that has not been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 61-2005 / Addendum 1.0-2005 (Drinking Water System Components—Health Effects), which is hereby incorporated by reference. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute.

(b) If a treatment chemical is generated on site,

(1) No equipment used in the generation process shall be in contact with a drinking water, or a chemical to be applied to drinking water, after March 9, 2008, unless the equipment has been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) Standard 61-2005/Addendum 1.0-2005 (Drinking Water System Components—Health Effects). This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute; and

(2) No input chemical used in the generation process shall be in contact with a drinking water after March 9, 2008, unless the chemical meets the requirements of section 64590.

(c) Any chemical used to clean on-line or off-line drinking water treatment facilities that may subsequently come into contact with drinking water to be distributed to the public shall meet the requirements of section 64590.

(d) Any contract for the purchase of chemicals, materials, or products that was signed by a public water system and effective prior to March 9, 2008, shall be exempt from the provisions of subsections (a) and (b) until March 9, 2009.

§ 64593. Use of Uncertified Chemicals, Materials or Products.

(a) A water supplier may use a chemical, material or product that has not been certified pursuant to sections 64590 or 64591 if the chemical, material or product is in the process of being tested and certified and there are no certified alternatives.

(b) Prior to use of an uncertified chemical, material or product, the water supplier shall provide the State Board with an explanation of the need for the chemical, material or product; the date that the chemical, material or product was submitted for testing; the name of the accredited product certification organization conducting the testing; and a statement that certified alternatives are not available.

(c) Unless directed otherwise by the State Board to ensure a pure and wholesome drinking water supply, a water supplier may use the following chemicals, materials, or

products that have not been and are not in the process of being certified pursuant to section 64590 or 64591:

(1) a material or product previously approved by the State Board for use or installation on or before March 9, 2008.

(2) a material or product constructed of components meeting the requirements of sections 64590 and 64591;

(3) chemical by-products necessary for meeting drinking water standards, such as sodium hypochlorite for disinfection, generated by chemicals certified pursuant to section 64590 or 64591; and

(4) atmospheric air and small parts, such as probes, sensors, wires, nuts, bolts, and tubing for which there are no certified alternatives.

Article 8. Distribution System Operation

§ 64600. Water System Operations and Maintenance Plan.

(a) If directed by the State Board to do so based on an identified deficiency in the system's operations, a water system shall develop and submit a Water System Operations and Maintenance Plan (Plan); the water system shall include those elements in the following list that are deemed by the State Board to be relevant to the deficiency:

(1) The operations and maintenance schedule for each unit process for each treatment plant that treats an approved surface water;

(2) The operations and maintenance schedule for each groundwater source and unit process;

(3) The schedule and procedure for flushing dead end mains, and the procedures for disposal of the flushed water including dechlorination;

(4) The schedule for routine inspection of reservoirs, and the procedures for cleaning reservoirs;

(5) The schedule and procedures for inspecting, repairing, and replacing water mains;

(6) The plan and procedures for responding to water supply emergencies;

(7) The plan and procedures for responding to consumer complaints;

(8) The schedule and procedures for testing backflow prevention assemblies;

(9) The schedule and procedures for routine exercising of water main valves;

(10) The schedule and program for maintenance and calibration of source flow meters and other online instruments used to determine the quality or quantity of water;

(11) The qualifications and training of operating personnel;

(12) The program for control of biological organisms on the interior walls of water mains; and

(13) For an underground reservoir with a buried roof designed for a function in addition to covering the reservoir, a comprehensive routine inspection and monitoring plan to ensure that there is no contamination of the reservoir as a result of that additional function.

(b) Each water system that has prepared a Plan pursuant to subsection (a) shall operate in accordance with its State Board-approved Plan.

(c) Each water system that has prepared a Plan pursuant to subsection (a) shall update the Plan at least once every five years and, in addition, following any change in the method of treatment or any other modification to the system requiring a change in the systems operations and maintenance.

§ 64602. Minimum Pressure.

(a) Each distribution system shall be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution system is not less than 20 pounds per square inch at all times.

(b) Each new distribution system that expands the existing system service connections by more than 20 percent or that may otherwise adversely affect the distribution system pressure shall be designed to provide a minimum operating pressure throughout the new distribution system of not less than 40 pounds per square inch at all times excluding fire flow.

§ 64604. Preparation and Maintenance of Records.

(a) Each public water system subject to this chapter shall prepare:

(1) "As built" plans, maps, and drawings of all new water system facilities including updated information for all existing facilities in the same location or connected to the new facilities. The plans, maps, and drawings shall be clear and legible and shall include the location, size, construction material, and year of installation of each new water main or other facility.

(2) A schematic drawing or map showing the location of each water source, treatment facility, pumping plant, reservoir, water main and isolation valve.

(b) The plans, drawings, and maps prepared pursuant to subsection (a) shall be updated as changes occur, and maintained until replaced or superseded by updated plans or drawings. The most current plans, drawings, and maps shall be available for State Board review.

(c) Results of laboratory analyses of samples taken pursuant to sections 64580, 64582, and 64583, records of flushing of mains; and records of reservoir inspections and cleaning shall be maintained for at least three years.

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Chapter 17. Surface Water Treatment

Article 1. General Requirements and Definitions

§ 64650. General Requirements.

(a) For a supplier using an approved surface water, as defined in section 64651.10, this chapter establishes treatment techniques in lieu of maximum contaminant levels for turbidity and the following microbial contaminants: *Giardia lamblia* (cysts), viruses, heterotrophic plate count bacteria, *Legionella*, and *Cryptosporidium.*

(b) A supplier using an approved surface water shall provide multibarrier treatment necessary to reliably protect users from the adverse health effects of microbiological contaminants and to comply with the requirements and performance standards prescribed in this chapter.

(c) A supplier that meets the requirements of section 64652.5 and wishes to not be required to provide multibarrier treatment shall submit an application to the State Board. That application shall consist of comprehensive documentation that either demonstrates current compliance with the requirements in section 64652.5 or demonstrates that the water system will be in compliance within fifteen months from application submittal.

(d) If at any time the State Board determines that a water supplier is not in compliance with the requirements of this chapter, the supplier shall submit for State Board approval a plan and schedule to modify its system to meet the requirements of this chapter. The supplier shall submit the plan and schedule within 90 days of receipt of the State Board's determination.

(e) If the supplier disagrees with the State Board's determination in subsection (d), the supplier shall submit reasons for its disagreement within 30 days of receipt of the determination. If the State Board's final determination is that the supplier does not meet the requirements of this chapter, the supplier shall comply with the provisions of subsection (d) within 90 days of receipt of the State Board's final determination.

(f) A supplier shall comply with the following provisions of 40 Code of Federal Regulations as they appear in the:

(1) Long Term 2 Enhanced Surface Water Treatment Rule published in 71 Federal Register 654 (January 5, 2006), which are incorporated by reference: sections 141.211, Appendix A to Subpart Q (Public Notification), 141.700, 141.701, 141.702, 141.703, 141.704, 141.705, 141.706, 141.707, 141.708, 141.709, 141.710, 141.711, 141.712, 141.713, 141.714, 141.715 (except subsection (b)(4)), 141.716, 141.717 (except subsection (b)), 141.718, 141.719, 141.720, 141.721 (except subsection (f)(4)), 141.722, and 141.723, except that in:

(A) sections 141.211(a) and (b), the phrase "§ 141.203(b)" is replaced by "section 64463.4(b)(2)";

(B) section 141.211(c), the phrase "§ 141.203(c)" is replaced by "section 64463.4(c)";

(C) section 141.211(c), the phrase "§ 141.205(c)" is replaced by "sections 64465(c) and (d)";

(D) Appendix A to Subpart Q (Public Notification), Endnote 1, the phrase "§ 141.202(a) and § 141.203(a)" is replaced by "sections 64463.1 and 64463.4";

(E) sections 141.700(a) and (b)(3) and 141.711(a), the phrase "subparts H, P, and T of this part" is replaced by "Title 22, Division 4, Chapter 17, California Code of Regulations";

(F) sections 141.700(b), 141.701(e), 141.701(f)(2), and 141.719(a), the phrase "subpart H" is replaced by "Title 22, Division 4, Chapter 17, California Code of Regulations";

(G) section 141.700(b)(1), the phrase "§ 141.2" is replaced by "section 64402.30";

(H) section 141.700(b)(2), the phrase "National Primary Drinking Water Regulations" is replaced by "Title 22, Division 4, Chapter 17, California Code of Regulations";

(I) sections 141.700(c)(7) and 141.723 heading, (b), (c), and (d), the phrase "EPA" is replaced by "State Board";

(J) section 141.701(a)(5), the alternative *E. coli* concentration to trigger *Cryptosporidium* monitoring shall be 100 *E. coli*/100 mL for both lake/reservoir and flowing stream sources;

(K) section 141.703(d)(1), the phrase "§ 141.173(b) or § 141.522(a)" is replaced by "sections 64653(e) and (f)";

(L) section 141.709(c)(2), the phrase "§ 141.172 or § § 141.530 through 141.536" is replaced by "section 64656.5(a)";

(M) section 141.712(d), the phrase "§ 141.72(a)" is replaced by "section 64652.5(k)";

(N) section 141.718(b), the phrase "§ 141.174 or § 141.560" is replaced by "sections 64655 and 64661"; and

(O) section 141.719(b), the phrase "§ 141.2" is replaced by "section 64651.54";

(2) Long Term 2 Enhanced Surface Water Treatment Rule, Correction published in 71 Federal Register 6136 (February 6, 2006), which is incorporated by reference: section 141.719; and

(3) Minor Correction to Stage 2 Disinfectants and Disinfection Byproducts Rule and Changes in References to Analytical Methods published in 74 Federal Register 30953 (June 29, 2009), which are incorporated by reference: sections 141.74 and 141.704.

[Note: The Code of Federal Regulations text pertaining to the above subsection (f) is provided in Addendum B of this book.]

§ 64651.10. Approved Surface Water.

"Approved surface water" means a surface water or groundwater under the direct influence of surface water that has received permit approval from the State Board in accordance with sections 116525 through 116550 of the Health and Safety Code.

§ 64651.12. Bag Filters.

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

§ 64651.13. Bank Filtration.

"Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s).

Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

§ 64651.15. Cartridge Filters.

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

§ 64651.16. Coagulant Chemical.

"Coagulant chemical" means a floc-forming agent that has been demonstrated to provide coagulation.

§ 64651.20. Coagulation.

"Coagulation" means a process using coagulant chemicals and rapid mixing, by which colloidal and suspended material are destabilized and agglomerated into settleable and/or filterable flocs.

§ 64651.21. Comprehensive Performance Evaluation (CPE).

"Comprehensive performance evaluation (CPE)" means a review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation, and maintenance practices.

§ 64651.23. Conventional Filtration Treatment.

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

§ 64651.26. Diatomaceous Earth Filtration.

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

§ 64651.30. Direct Filtration Treatment.

"Direct filtration treatment" means a series of processes including coagulation, flocculation, and filtration but excluding sedimentation.

§ 64651.32. Disinfectant Contact Time.

"Disinfectant contact time" means the time in minutes that it takes for water to move from the point of disinfectant application or a previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration is measured. Disinfectant contact time in pipelines is calculated by dividing the internal volume of the pipe by the flow rate through the pipe. Disinfectant contact time within mixing basins and storage reservoirs is determined by tracer studies or an equivalent demonstration to the State Board.

§ 64651.33. Disinfection.

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

§ 64651.34. Disinfection Profile.

"Disinfection profile" means a summary of *Giardia lamblia* or virus inactivation through the treatment plant.

§ 64651.36. Engineering Report.

"Engineering report" means a water treatment technical report prepared by a qualified engineer.

§ 64651.38. Filter Profile.

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

§ 64651.40. Filter-To-Waste.

"Filter-to-waste" means a provision in a filtration process to allow the first filtered water, after backwashing a filter, to be wasted or reclaimed.

§ 64651.43. Filtration.

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

§ 64651.46. Flocculation.

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

§ 64651.48. Flowing Stream.

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

§ 64651.50. Groundwater Under the Direct Influence of Surface Water.

"Groundwater under the direct influence of surface water" means any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae or large diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity or pH which closely correlate to climatological or surface water conditions.

§ 64651.52. Lake/Reservoir.

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

§ 64651.53. Legionella.

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

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§ 64651.54. Membrane Filtration.

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

§ 64651.56. Multibarrier Treatment.

"Multibarrier treatment" means a series of water treatment processes that provide for both removal and inactivation of waterborne pathogens.

§ 64651.60. NTU (Nephelometric Turbidity Unit).

"Nephelometric Turbidity Unit (NTU)" means a measurement of the turbidity of water as determined by the methods in 40 Code of Federal Regulations, part 141.74(a)(1) (67 Fed. Reg. 65888 (October 29, 2002)), which is incorporated by reference.

§ 64651.61. Plant Intake.

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

§ 64651.62. Presedimentation.

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

§ 64651.63. Pressure Filter.

"Pressure filter" means a pressurized vessel containing properly sized and graded granular media.

§ 64651.66. Qualified Engineer.

"Qualified engineer" means a Civil Engineer, registered in the State of California, with 3 years experience in water treatment design, construction, operation, and watershed evaluations.

§ 64651.70. Residual Disinfectant Concentration.

"Residual disinfectant concentration" means the concentration of the disinfectant in milligrams per liter (mg/l) in a representative sample of water.

§ 64651.73. Sedimentation.

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

§ 64651.76. Slow Sand Filtration.

"Slow sand filtration" means a process involving passage of raw water through a bed of sand at rates not to exceed 0.10 gallons per minute per square foot resulting in substantial particulate removal by physical and biological mechanisms.

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§ 64651.80. Supplier.

"Supplier," for the purpose of this chapter, means the owner or operator of a water system for the provision to the public of piped water for human consumption, provided such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

§ 64651.83. Surface Water.

"Surface water" means all water open to the atmosphere and subject to surface runoff. For purposes of this chapter, water runoff originating from the lined walls and other man-made appurtenant structures of treated water distribution reservoirs, is excluded from the definition of surface water.

§ 64651.86. Turbidity Level.

"Turbidity level" means the value in NTU obtained by measuring the turbidity of a representative grab sample of water at a specified regular interval of time. If continuous turbidity monitoring is utilized, the turbidity level is the discrete turbidity value at a given time.

§ 64651.88. Uncovered Finished Water Storage Facility.

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

§ 64651.90. Virus.

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

§ 64651.91. Waterborne Microbial Disease Outbreak.

"Waterborne microbial disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by a County Health Officer or the State Board.

§ 64651.93. Watershed.

"Watershed" means the area contained in a drainage basin which is tributary to a water supply diversion point.

Article 2. Treatment Technique Requirements, Watershed Protection Requirements, and Performance Standards

§ 64652. Treatment Technique Requirements and Compliance Options.

(a) A supplier using an approved surface water shall provide multibarrier treatment that meets the requirements of this chapter and reliably ensures at least, between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer:

(1) A total of 99.9 percent reduction of *Giardia lamblia* cysts through filtration and disinfection;

(2) A total of 99.99 percent reduction of viruses through filtration and disinfection; and

(3) A total of 99 percent removal of *Cryptosporidium* through filtration.

(b) A supplier meeting the requirements of section 64654 in combination with either section 64652.5 or 64653 shall be deemed to be in compliance with the minimum reduction requirements specified in subsections (a)(1) and (a)(2).

(c) A supplier meeting the requirements of section 64652.5 or 64653 shall be deemed to be in compliance with the minimum removal requirement specified in subsection (a)(3).

(d) A supplier serving 10,000 or more persons shall not begin construction of an uncovered finished water storage facility. If a supplier serving fewer than 10,000 persons began construction of a finished water reservoir on or after March 15, 2002, the reservoir shall be covered.

(e) A supplier that uses conventional or direct filtration treatment and recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall comply with the recycle requirement of section 64653.5(b).

(f) A supplier shall comply with the disinfection profiling and benchmarking requirements of section 64656.5.

(g) A supplier shall comply with the treatment technique and microbial toolbox component requirements specified in sections 64650(f)(1) and (2).

(h) No variances from the requirements in this section are permitted.

§ 64652.5. Criteria for Avoiding Filtration.

(a) A supplier that uses an approved surface water shall meet all of the requirements of this section to avoid the necessity of providing filtration. Within 18 months of the failure of a supplier using an approved surface water to meet any one of the requirements of subsections (b) through (l), the supplier shall have installed filtration and meet the requirements for filtered systems specified in sections 64653, 64658, 64659, 64660, and 64661.

(b) The approved surface water quality shall be monitored downstream of all surface water and groundwater under the influence of surface water contributions and upstream of the first or only point of disinfectant application, as follows:

(1) For fecal or total coliform density at the following minimum frequency each week:

System size (persons served)	*Samples/week*
≤ 500	1
501–3,300	2*
3,301–10,000	3*
10,001–25,000	4*
> 25,000	5*

*Shall be taken on separate days.

(2) For fecal or total coliform density, once every day the turbidity of the source water exceeds 1 NTU unless the State Board determines that the system, for logistical reasons outside the system's control, is unable to have the sample analyzed within 30 hours of collection. If collected, these samples count toward the weekly coliform sampling requirement; and

(3) For turbidity at a minimum frequency of once every four hours. A supplier may substitute continuous turbidity monitoring for grab sample monitoring if, at regular intervals, it validates the accuracy of the continuous measurement using a protocol approved by the State Board.

(c) The approved surface water quality monitored pursuant to subsection (b) shall meet the following criteria:

(1) The fecal coliform concentration shall be equal to or less than 20/100 mL, or the total coliform concentration shall be equal to or less than 100/100 mL, in representative samples of the approved surface water in at least 90 percent of the measurements made for the six previous months that the system served unfiltered approved surface water to the public on an ongoing basis. If a system measures both fecal and total coliforms, the fecal coliform criterion, not the total coliform criterion, in this paragraph shall be met; and

(2) The turbidity level shall not exceed 5 NTU in representative samples of the approved surface water unless:

(A) The State Board determines that any such event was caused by circumstances that were unusual and unpredictable; and

(B) As a result of any such event, there have not been more than two events in the past 12 months the system served unfiltered approved surface water to the public, or more than five events in the past 120 months the system served unfiltered approved surface water to the public, in which the turbidity level exceeded 5 NTU. An "event" is one day or a series of consecutive days during which at least one turbidity measurement each day exceeds 5 NTU.

(d) Water quality information collected pursuant to subsection (a) shall be reported to the State Board in conformance with the requirements of 40 CFR section 141.75(a)(1) (54 Fed. Reg. 27486 (June 29, 1989)), which is incorporated by reference.

(e) The supplier shall maintain a watershed control program which minimizes the potential for contamination by *Giardia lamblia* cysts, viruses, and *Cryptosporidium* oocysts in the source water. The adequacy of the program to limit potential contamination by *Giardia lamblia* cysts, viruses, and *Cryptosporidium* oocysts shall be determined by: the comprehensiveness of the watershed review; the effectiveness of the supplier's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water system has maximized land ownership and/or controlled land use within the watershed. At a minimum, the watershed control program shall:

(1) Characterize the watershed hydrology and land ownership;

(2) Identify watershed characteristics and activities which may have an adverse effect on source water quality;

(3) Monitor the occurrence of activities which may have an adverse effect on source water quality. The supplier shall demonstrate through ownership and/or written agreements with landowners within the watershed that it can control all human activities which may have an adverse impact on the microbiological quality of the water. The supplier shall submit an annual report to the State Board that identifies any special concerns about the watershed and how they are being handled; describes activities in the watershed that affect water quality; and projects what adverse activities are

expected to occur in the future and how the public water system expects to address them; and

(4) Monitor the presence of *Giardia lamblia* cysts in the approved surface water whenever agricultural grazing, water oriented recreation, or point source domestic wastewater discharges occur on the watershed. At a minimum the monitoring shall measure the *Giardia lamblia* cyst concentration monthly at a point immediately prior to the first or only point of disinfectant application. The monitoring results shall be included in an annual report to the State Board. This monitoring requirement may be waived after one year for a supplier serving fewer than 500 persons when the monitoring results indicate a mean *Giardia lamblia* cyst concentration of 1 cyst per 100 liters or less.

(f) The water system shall be subject to an annual on-site inspection to assess the watershed control program and disinfection treatment process. Either the State Board or a party approved by the State Board shall conduct the on-site inspection. The inspection shall be conducted by competent individuals who have a sound understanding of public health principles and waterborne diseases, such as sanitary engineers, civil engineers, environmental health specialists, or technicians who have experience and knowledge about the operation and maintenance of a public water system. A report of the on-site inspection summarizing all findings shall be prepared every calendar year and submitted to the State Board, if not conducted by the State Board, by December 31 of that year. The on-site inspection shall be comprehensive to enable the State Board to determine whether the watershed control program and disinfection treatment process are adequately designed and maintained. The on-site inspection shall include:

(1) A review of the effectiveness of the watershed control program;

(2) A review of the physical condition of the source intake and how well it is protected;

(3) A review of the supplier's equipment maintenance program to ensure there is low probability for failure of the disinfection process;

(4) An inspection of the disinfection equipment for physical deterioration;

(5) A review of operating procedures;

(6) A review of data records to ensure that all required tests are being conducted and recorded and disinfection is effectively practiced; and

(7) Identification of any improvements which are needed in the equipment, system maintenance and operation, or data collection.

(g) The water system shall not have been identified as a source of a waterborne microbial disease outbreak, or if it has been so identified, the system shall have been modified sufficiently to prevent another such occurrence, as determined by the State Board.

(h) The water system shall comply with the *E. coli* maximum contaminant level (MCL) specified in 22 CCR section 64426.1 at least 11 of the 12 previous months that the system served water to the public on an ongoing basis, unless the State Board determines that failure to meet this requirement was not caused by the unfiltered approved surface water.

(i) The water system shall comply with the requirements for total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide specified in 22 CCR, division 4, chapter 15.5, commencing with section 64530.

(j) The supplier shall provide to the State Board an annual report, by December 31st of each year, which summarizes its compliance with all the watershed control program requirements.

(k) The water system shall meet the following special disinfection requirements:

(1) The water system shall not fail to provide disinfection treatment sufficient to ensure at least a 99.9 percent inactivation of *Giardia lamblia* cysts and a 99.99 percent inactivation of viruses for more than one day in any month the water system served unfiltered approved surface water. The means used to demonstrate the required percent inactivation with disinfection shall be in conformance with the requirements of 40 CFR sections 141.72(a)(1), and 141.74(b)(3) and (b)(4) (54 Fed. Reg. 27486 (June 29, 1989)), which are incorporated by reference. Disinfection information collected pursuant to this subsection shall be reported to the State Board in conformance with the requirements of 40 CFR section 141.75(a)(2) (54 Fed. Reg. 27486 (June 29, 1989)), which are incorporated by reference. The necessity to install filtration as a result of a failure to meet the requirements in subsection (c) will not apply if:

(A) Either the supplier meets the requirements of subsection (c) at least 11 of the 12 previous months that the system served unfiltered approved surface water to the public on an ongoing basis; or

(B) The system fails to meet the requirements of subsection (c) during 2 of the 12 previous months that the system served unfiltered approved surface water to the public; and

(C) The State Board determines that failure to meet the requirements in subsection (c) for at least one of these months was caused by circumstances that were unusual and unpredictable.

(2) The disinfection system shall have either:

(A) Redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system; or

(B) Automatic shut-off of delivery of water to the distribution system whenever there is less than 0.2 mg/L of residual disinfectant concentration in the water.

(3) The water system shall meet the requirements of section 64654(b)(1) at all times the system serves unfiltered approved surface water to the public unless the State Board determines that any such failure was caused by circumstances that were unusual and unpredictable; and

(4) The water system shall meet the requirements of section 64654(b)(2) on an ongoing basis unless the State Board determines that failure to meet these requirements was not caused by a deficiency in treatment of the unfiltered approved surface water.

(l) Whenever the monitoring of the quality of the approved surface water indicates the turbidity exceeds 5.0 NTU, or the fecal coliform level exceeds 20/100 mL or the total coliform concentration exceeds 100/100 mL in 10 percent or more of the samples collected in the previous six months during which the system served unfiltered approved surface water to the public on an ongoing basis, the source shall be removed from service. The source may be returned to service when monitoring subsequent to removing the source from service demonstrates that the turbidity is less than or equal to

5.0 NTU and the fecal coliform level is less than or equal to 20/100 mL or the total coliform level is less than or equal to 100/100 mL for two consecutive days, and *Giardia lamblia* monitoring results indicate 1 cyst per 100 liters or less. If a system measures both fecal and total coliforms, the fecal coliform criterion, not the total coliform criterion, in this subsection shall be met.

§ 64653. Filtration.

(a) All approved surface water utilized by a supplier shall be treated using one of the following filtration technologies unless an alternative process has been approved by the State Board pursuant to subsections (e), (f), (g) and (h):

(1) Conventional filtration treatment;

(2) Direct filtration treatment;

(3) Diatomaceous earth filtration; or

(4) Slow sand filtration.

(b) Conventional filtration treatment shall be deemed to be capable of achieving at least 99.7 percent removal of *Giardia lamblia* cysts, 99 percent removal of viruses, and 99 percent removal of *Cryptosporidium* when in compliance with operating criteria specified in section 64660 and performance standards specified in table 64653. Direct filtration treatment, diatomaceous earth filtration, and slow sand filtration shall be deemed to be capable of achieving at least 99 percent removal of *Giardia lamblia* cysts, 90 percent removal of viruses, and 99 percent removal of *Cryptosporidium* when in compliance with operating criteria specified in section 64660 and performance standards specified in table 64653.

(c) A supplier shall comply with the combined filter effluent turbidity performance standards in table 64653 for each treatment plant while the plant is in operation:

Table 64653
Combined Filter Effluent Turbidity Performance Standards[(a)]

If a supplier uses…	*The turbidity level of the combined filter effluent…*
(1) Conventional or direct filtration treatment and serves 10,000 or more persons	(A) Shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month; (B) Shall not exceed 1 NTU for more than one continuous hour; (C) Shall not exceed 1 NTU at four-hour intervals; and (D) Shall not exceed 1.0 NTU for more than eight consecutive hours.
(2) Conventional or direct filtration treatment and serves fewer than 10,000 persons	(A) Shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month; (B) For a supplier using a grab sample monitoring program: 1. Shall not exceed 1 NTU; and 2. Shall not exceed 1.0 NTU in more than two consecutive samples; and (C) For a supplier using a continuous monitoring program: 1. If recording results at least once every 15 minutes, shall comply with paragraph (1)(B); and

	2. Shall comply with paragraphs (1)(C) and (1)(D).
(3) Diatomaceous earth filtration	(A) Shall be less than or equal to 0.5 NTU in at least 95 percent of the measurements taken each month; (B) Shall not exceed 5.0 NTU; (C) For a supplier using a grab sample monitoring program, shall comply with paragraph (2)(B)2; and (D) For a supplier using a continuous monitoring program, shall comply with paragraph (1)(D).
(4) Slow sand filtration	(A) Shall be less than or equal to 1.0 NTU in at least 95 percent of the measurements taken each month; and (B) Shall not exceed 5.0 NTU.

[(a)] If there is only one filter at the treatment plant, the combined filter effluent turbidity performance standards shall apply to the effluent produced by the filter.

(d) To obtain approval for a higher removal efficiency than that specified in subsection (b), a water supplier shall demonstrate to the State Board that the higher removal efficiency can be reliably obtained.

(e) An alternative to the filtration technologies specified in subsection (a) may be used provided that the supplier demonstrates to the State Board that the alternative technology:

(1) Provides a minimum of 99 percent *Giardia lamblia* cyst removal, 90 percent virus removal for the suppliers serving more than 500 persons, and 99 percent *Cryptosporidium* removal; and

(2) Meets the turbidity performance standards established by the State Board, as determined from the alternative filtration technology demonstration conducted pursuant to subsection (f). The turbidity performance standards shall not be less stringent than the turbidity performance standards established in subsection (c)(1).

(f) The alternative filtration technology demonstration shall be based on the results from a prior equivalency demonstration or a testing of a full scale installation that is treating a water with similar characteristics and is exposed to similar hazards as the water proposed for treatment. A pilot plant test of the water to be treated may also be used for this demonstration if conducted with the approval of the State Board. The demonstration shall be presented in an engineering report prepared by a qualified engineer.

(g) A supplier proposing to use an alternative filtration technology may request from the State Board a waiver to comply with the requirements of subsection (e) to demonstrate 90 percent virus removal. The request shall be based on a watershed sanitary survey conducted in accordance with section 64665, within 12 months of the date of the request, that demonstrates a lack of virus hazard in the watershed.

(h) The State Board's approval of alternative filtration technologies, including establishment of performance standards and monitoring requirements, shall be done in accordance with the permit process specified in sections 116525 through 116550 of the Health and Safety Code.

(i) Within 60 days following the first full year of operation of a new alternative filtration treatment process approved by the State Board, the supplier shall submit an engineering report prepared by a qualified engineer describing the effectiveness of the plant operation. The report shall include results of all water quality tests performed and shall evaluate compliance with established performance standards under actual operating conditions. It shall also include an assessment of problems experienced, corrective actions needed, and a schedule for providing needed improvements.

§ 64653.5. Recycle Provisions.

A supplier that uses conventional filtration or direct filtration and recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall:

(a) Provide the State Board with the following information in writing:

(1) Plant schematic showing the origin of all recycle flows, the hydraulic conveyance used to transport each, and the point at which each is re-introduced into the treatment plant; and

(2) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and the approved operating capacity for the plant if the State Board has specified one.

(b) Return all recycle flows to the headworks of the treatment plant or an alternative location approved by the State Board.

(c) Collect and retain the following information and provide it to the State Board upon request:

(1) A copy of the State Board notification required pursuant to subsection (a);

(2) A list of all recycle flows and the frequency with which they are returned;

(3) Average and maximum backwash flow rates through the filters and the average and maximum durations of the filter backwash process in minutes;

(4) Typical filter run length and a written summary of how filter run length is determined;

(5) The type of treatment provided for the recycle flow; and

(6) Data on the physical dimensions of the equalization and/or treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used and average dose and frequency of use, and frequency at which solids are removed, if applicable.

§ 64654. Disinfection.

(a) All approved surface water utilized by a supplier shall be provided with continuous disinfection treatment sufficient to insure that the total treatment process provides inactivation of *Giardia lamblia* cysts and viruses, in conjunction with the removals obtained through filtration, to meet the reduction requirements specified in section 64652(a).

(b) Disinfection treatment shall comply with the following performance standards:

(1) Water delivered to the distribution system shall not contain a disinfectant residual of less than 0.2 mg/l for more than four hours in any 24 hour period.

(2) The residual disinfectant concentrations of samples collected from the distribution system shall be detectable in at least 95 percent of the samples taken each month that the system serves water to the public, except as provided in subsection (c). At any sample point in the distribution system, the presence of heterotrophic plate count (HPC)

at concentrations less than or equal to 500 colony forming units per milliliter shall be considered equivalent to a detectable disinfectant residual.

(c) Paragraph (b)(2) shall not apply to suppliers serving fewer than 500 persons provided:

(1) The system is in compliance with the Cross-Connection Control Policy Handbook as defined in 22 CCR section 60301.175, and with 22 CCR sections 64602 and 64570(b), 64572, and 64580;

(2) The supplier has no means for having a sample transported and analyzed for HPC by a certified laboratory under the appropriate time and temperature conditions; and

(3) The supplier is providing adequate disinfection in the distribution system.

(d) No exemptions from the requirement in paragraph (b)(1) are permitted.

Article 3. Monitoring Requirements

§ 64654.8. Source, Raw, Settled, and Recycled Filter Backwash Monitoring.

(a) A supplier shall comply with the source monitoring requirements specified in section 64650(f).

(b) Pursuant to the operations plan required by section 64661, a supplier shall:

(1) Monitor the raw water supply for:

(A) Turbidity at least once a day; and

(B) Total coliform and either fecal coliform or *E. coli* bacteria using density analysis at least once a month;

(2) If using conventional filtration treatment, monitor the turbidity of the settled water at least once a day; and

(3) If recycling filter backwash water, monitor the turbidity and determine the flow of the recycled water at least once a day or once during each recycle event. Monitoring shall be representative of the recycled water.

§ 64655. Filtration Monitoring.

(a) To determine compliance with the performance standards specified in section 64653 and the operating criteria in section 64660, a supplier shall conduct turbidity monitoring in accordance with table 64655. Monitoring shall be conducted when the treatment plant is in operation and pursuant to the operations plan required by section 64661.

Table 64655
Filtered Water Turbidity Monitoring

If a supplier uses…	Turbidity monitoring shall be conducted of…	And the turbidity level shall be recorded…
	(A) Each individual filter, continuously; and	At least once every 15 minutes

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(1) Conventional or direct filtration treatment and serves 10,000 or more persons	(B) The combined filter effluent[(b)], continuously	At least once every 15 minutes
(2) Conventional or direct filtration treatment and serves fewer than 10,000 persons[(a)]	(A) Each individual filter, continuously[(c)]; and	At least once every 15 minutes
	(B) The combined filter effluent[(b)], by grab sample at least once every four hours[(d)]	At least once every four hours
(3) Diatomaceous earth or slow sand filtration[(a)]	The combined filter effluent[(b)], by grab sample at least once every four hours[(d)]	At least once every four hours

[(a)] A supplier using slow sand filtration, or serving 500 or fewer persons, that is in compliance with the performance standards specified in section 64653 may reduce turbidity monitoring of the combined filter effluent to one grab sample per day. The result shall be recorded daily.
[(b)] Representative sample prior to clearwell storage.
[(c)] If there are two or fewer filters, a supplier may conduct continuous monitoring of the combined filter effluent in lieu of continuous monitoring of each individual filter. The results shall be recorded at least once every 15 minutes.
[(d)] Continuous turbidity measurements may be substituted for grab sample monitoring provided the supplier validates the accuracy of the measurements on a weekly basis.

(b) A supplier shall calibrate turbidimeters used for continuous turbidity monitoring according to the procedure specified by the manufacturer.

(c) If there is an interruption in continuous turbidity monitoring due to equipment failure or maintenance, a supplier that uses conventional or direct filtration treatment shall conduct grab sample monitoring once every four hours in lieu of continuous monitoring until the continuous turbidimeter is back on-line. From the time of equipment failure or maintenance interruption, continuous monitoring shall be reinitiated:

(1) For a supplier serving 10,000 or more persons, within 48 hours for the combined filter effluent and within five working days for the individual filter effluent; or

(2) For a supplier serving fewer than 10,000 persons, within 14 working days for the individual filter effluent.

§ 64656. Disinfection Monitoring.

(a) To determine compliance with disinfection inactivation requirements specified in section 64654(a), a supplier shall develop and conduct a monitoring program to measure those parameters that affect the performance of the disinfection process. This shall include but not be limited to the temperature of the disinfected water, the pH(s) of the disinfected water if chlorine is used as a disinfectant, the disinfectant contact time(s) and the residual disinfectant concentration(s) before or at the first customer. The monitoring program shall be described in the operations plan required by section 64661.

(b) To determine compliance with the performance standard specified in section 64654(b)(1), the disinfectant residual concentration of the water being delivered to the

distribution system shall be measured and recorded continuously except as provided in subsection (f).

(c) To determine compliance with section 64654(b)(2), the residual disinfectant concentration shall, at a minimum, be measured at the same points in the distribution system and at the same time as total coliforms are sampled in accordance with 22 CCR sections 64423, 64424, and 64425, and described in the operations plan required by section 64661, except as provided in subsection (d).

(d) A supplier that uses both an approved surface water and a groundwater may take disinfectant residual samples at points other than those specified in subsection (c) provided the supplier demonstrates to the State Board that such sampling points are representative of the disinfected water in the distribution system.

(e) If there is a failure of continuous disinfectant residual monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

(f) A supplier serving 3,300 or fewer persons may collect and analyze grab samples of disinfectant residual each day as shown below in lieu of the continuous monitoring specified in subsection (b), provided that any time the residual disinfectant falls below 0.2 mg/L, the supplier shall take a grab sample every four hours until the residual concentration is equal to or greater than 0.2 mg/L:

System size by population	*Samples/day*
less than or equal to 500	1
501 - 1,000	2
1,001 - 2,500	3
2,501 - 3,300	4

(g) A supplier shall describe the location and frequency of sampling to comply with subsection (f) in the operations plan required by section 64661.

§ 64656.5. Disinfection Profiling and Benchmarking.

(a) A supplier that has developed a disinfection profile pursuant to 40 Code of Federal Regulations sections 141.172(a) and (b) (63 Fed. Reg. 69478 (December 16, 1998); amended Jan. 16, 2001, 66 Fed. Reg. 3770), which are incorporated by reference and a community water system or nontransient-noncommunity water system serving fewer than 10,000 persons that has developed a disinfection profile pursuant to 40 Code of Federal Regulations sections 141.530 through 141.535 (67 Fed. Reg. 1812 (January 14, 2002); amended June 29, 2004, 69 Fed. Reg. 38850), which are incorporated by reference, shall:

(1) Retain disinfection profile data and make it available to the State Board upon request; and

(2) Submit the following information to the State Board when applying for an amended permit to change the point of disinfection, disinfectant(s) used in the treatment plant, or disinfection process:

(A) A description of the proposed change;

(B) The disinfection profile developed pursuant to subsection (a);

(C) The benchmark conducted pursuant to 40 Code of Federal Regulations section 141.172(c) (63 Fed. Reg. 69478 (December 16, 1998)) or sections 141.540 through 141.544 (67 Fed. Reg. 1812 (January 14, 2002)), which are incorporated by reference; and

(D) An analysis of how the proposed change will affect the current levels of disinfection.

(b) A supplier that did not conduct optional TTHM and HAA5 monitoring under 40 CFR section 141.172 because they served fewer than 10,000 persons when such monitoring was required, but served more than 10,000 persons prior to January 1, 2005, shall:

(1) Consult with the State Board to establish a disinfection benchmark;

(2) Submit the following information to the State Board when applying for an amended permit to change the point of disinfection, disinfectant(s) used in the treatment plant, or disinfection process:

(A) The information described in subsections (a)(2)(A) and (a)(2)(C); and

(B) The disinfection profile and benchmark conducted pursuant to 40 Code of Federal Regulations sections 141.172(b) and (c) (63 Fed. Reg. 69478 (December 16, 1998); amended Jan. 16, 2001, 66 Fed. Reg. 3770), which are incorporated by reference; and

(3) Retain the disinfection profile data developed pursuant to paragraph (2)(B).

(c) A supplier shall comply with the disinfection profiling and benchmarking requirements specified in section 64650(f)(1).

Article 4. Design Standards

§ 64658. New Treatment Plants.

(a) Suppliers that propose to construct new filtration and disinfection treatment facilities or to modify or make additions to existing treatment facilities which require permit approval from the State Board pursuant to Health and Safety Code sections 116525 through 116550 shall submit an engineering report to the State Board describing how the proposed new treatment facilities will be designed to comply with the treatment, design, performance and reliability provisions required pursuant to this chapter. Modifications requiring permit approval include those that have a significant effect on plant performance, change the plant design rating or capacity, or change a major treatment process.

(b) All new filtration and disinfection facilities shall be designed and constructed to comply with the following criteria:

(1) Achieve an average daily effluent turbidity goal of 0.2 NTU when using conventional, direct, and diatomaceous earth filtration plants.

(2) Be free of structural and sanitary hazards.

(3) Protect against contamination by backflow.

(4) Meet the capacity and pressure requirements prescribed in 22 CCR sections 64554 and 64602.

(5) Provide flow measuring and recording equipment.

(6) Take into consideration the effects of events such as earthquakes, fires, floods, freezing, and sabotage that are reasonably foreseeable.

(7) Provide reasonable access for inspection, maintenance, and monitoring of all unit processes.

(8) Provide for filter-to-waste for each filter unit or addition of coagulant chemicals to the water used for backwashing.

(9) Provide backwash rates and surface or subsurface wash facilities using air, water or a combination thereof to clean the filter after use to its original condition.

(10) Provide solids removal treatment for filter backwash water if it is recycled into the treatment process. Recycled backwash water shall be returned to the headworks of the treatment plant.

(11) Provide for the future addition of pretreatment facilities in the design of direct filtration, slow sand, or diatomaceous earth filtration plants.

(12) Provide disinfection equipment sized for the full range of flow conditions expected and capable of feeding accurately at all flow rates.

(13) Provide for treatment plant operation without frequent shutdowns and startups or rapid changes in filtration rates.

(c) Whenever a coagulation process is used, the process selection shall be based on pilot plant or laboratory scale (jar test) or equivalent results that demonstrate effectiveness of the coagulant chemicals over the full range of water quality conditions expected.

§ 64659. Reliability.

(a) The following reliability features shall be included in the design and construction of all new and existing surface water treatment plants:

(1) Alarm devices to provide warning of coagulation, filtration, and disinfection failures. All devices shall warn a person designated by the supplier as responsible for taking corrective action, or have provisions to shut the plant down until corrective action can be taken.

(2) Standby replacement equipment available to assure continuous operation and control of unit processes for coagulation, filtration and disinfection.

(3) A continuous turbidity monitoring and recording unit on the combined filter effluent prior to clearwell storage.

(4) Multiple filter units which provide redundant capacity when filters are out of service for backwash or maintenance.

(b) Alternatives to the requirements specified in section 64659(a) shall be accepted provided the water supplier demonstrates to the satisfaction of the State Board that the proposed alternative will assure an equal degree of reliability.

Article 5. Operation

§ 64660. Operating Criteria.

(a) All treatment plants utilizing an approved surface water shall be operated by operators certified by the State Board in accordance with Health and Safety Code section 106885.

(b) Filtration facilities shall be operated in accordance with the following requirements:

(1) Conventional and direct filtration treatment plants shall be operated at filtration rates not to exceed 3.0 gallons per minute per square foot (gpm/sq. ft.) for single media filters and 6.0 gpm/sq. ft. for deep bed, dual or mixed media filters under gravity flow conditions. For pressure filters, filtration rates shall not exceed 2.0 gpm/sq. ft. for single media filters and 3.0 gpm/sq. ft. for dual, mixed media, or deep bed filters;

(2) Slow sand filters shall be operated at filtration rates not to exceed 0.10 gallon per minute per square foot. The filter bed shall not be dewatered except for cleaning and maintenance purposes;

(3) Diatomaceous earth filters shall be operated at filtration rates not to exceed 1.0 gallon per minute per square foot;

(4) To obtain approval for filtration rates higher than, but not more than twice, those specified in paragraphs (1), (2), and (3), a water supplier shall demonstrate to the State Board that the filters can comply with the performance requirements of section 64653;

(5) To obtain approval for filtration rates greater than twice those specified in paragraphs (1), (2), and (3), a water supplier shall demonstrate to the State Board that the filters do the following:

(A) Provide a minimum of 99 percent *Giardia lamblia* cyst removal, 90 percent virus removal, and 99 percent *Cryptosporidium* removal; and

(B) Meet the turbidity performance standards established in section 64653(c);

(6) Filtration rates shall be increased gradually when placing filters back into service following backwashing or any other interruption in the operation of the filter;

(7) When any individual filter in a conventional or direct filtration treatment plant is placed back into service following backwashing or other interruption event, the filtered water turbidity of the effluent from that filter shall not exceed any of the individual filter turbidity performance triggers in table 64660, subparagraphs (A) through (D). The filtered water turbidity of the effluent from any individual filter in a conventional or direct filtration treatment plant shall not exceed any of the individual filter turbidity performance triggers in table 64660, subparagraphs (E) through (G). If an exceedance occurs, a supplier shall comply with the required follow-up action in table 64660:

Table 64660
Individual Filter Turbidity Performance Triggers and Required Follow-Up Actions for a Trigger Exceedance[(a)]

Performance Trigger at Any Time During the First Four Hours of Operation	*Required Follow-Up Actions*
(A) 2.0 NTU	1. The supplier shall take the filter unit out of service and inspect it to determine the cause of its inadequate performance; and
(B) 1.0 NTU following at least 90 percent of the interruption events during any period of 12 consecutive months	2. The supplier shall not return the filter unit to service until deficiencies have been corrected and operations tests demonstrate that the filter unit is meeting the

	performance triggers of subparagraphs (A), (B), and (C).
Performance Trigger at the Time that the Filter has been in Operation for Four Hours	*Required Follow-Up Action*
(C) 0.5 NTU	The supplier shall comply with the required follow-up actions of subparagraphs (A)1. and (A)2.
Performance Trigger in Two Consecutive Measurements Taken No More than 15 Minutes Apart	*Required Follow-Up Action*
(D) For a supplier serving 10,000 or more persons, 0.3 NTU after the filter has been in continuous operation for 60 minutes or more	Within seven days of the exceedance, the supplier shall produce a filter profile if the supplier is unable to identify and report a reason for the abnormal filter performance.
(E) 1.0 NTU	A supplier serving 10,000 or more persons shall comply with the required follow-up action of subparagraph (D).
(F) 1.0 NTU for three consecutive months	1. Within 14 days of the exceedance, the supplier shall conduct a self-assessment of the filter. The self-assessment shall consist of the following components as a minimum: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report; 2. A supplier serving fewer than 10,000 persons shall conduct a self-assessment unless a comprehensive performance evaluation (CPE) was conducted pursuant to an exceedance of subparagraph (G); and 3. A supplier serving fewer than 10,000 persons and monitoring pursuant to footnote (c) of table 64655 shall conduct a self-assessment of each individual filter.
(G) 2.0 NTU for two consecutive months	1. The supplier shall arrange with the State Board for the conduct of a CPE pursuant to "Optimizing Water Treatment Plant Performance Using the Composite Correction Program," EPA Handbook, Chapter 4, pg. 21-65, Office of Research and Development, USEPA, EPA/625/6-

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	91/027 (revised August 1998), which is incorporated by reference;
Performance Trigger at Any Time During the First Four Hours of Operation	*Required Follow-Up Actions*
	2. If a supplier serves 10,000 or more persons, the CPE shall be conducted no later than 30 days following the exceedance; and
	3. If a supplier serves fewer than 10,000 persons, the CPE shall be conducted no later than 60 days following the exceedance. If a CPE was completed within the prior 12 months or the supplier and State Board are jointly participating in an ongoing comprehensive technical assistance project at the water system, a new CPE is not required.

[(a)] For a supplier monitoring pursuant to footnote (c) of table 64655, the individual filter turbidity performance triggers of table 64660 shall apply to the combined filter effluent.

(8) Pressure filters shall be physically inspected and evaluated annually for such factors as media condition, mudball formation, and short circuiting. A written record of the inspection shall be maintained at the treatment plant; and

(9) Coagulation and flocculation unit processes shall be in use at all times during which conventional and direct filtration treatment plants are in operation. The effectiveness of these processes shall be demonstrated by either at least an 80 percent reduction through the filters of the monthly average raw water turbidity or jar testing, pilot testing or other means to demonstrate that optimum coagulation is being achieved.

(c) Disinfection facilities shall be operated in accordance with the following requirements:

(1) A supply of chemicals necessary to provide continuous operation of disinfection facilities shall be maintained as a reserve or demonstrated to be available; and

(2) An emergency plan shall be developed prior to initiating operation of the disinfection facilities. The plan shall be implemented in the event of disinfection failure to prevent delivery to the distribution system of any undisinfected or inadequately disinfected water. The plan shall be posted in the treatment plant or other place readily accessible to the plant operator.

§ 64661. Operations Plan.

(a) A supplier shall operate each treatment plant in accordance with an operations plan that has been approved by the State Board. With a permit application for a new treatment plant or modification to an existing treatment plant, the supplier shall submit for State Board review and approval an operations plan for each treatment plant that treats an approved surface water. The State Board shall review the operations plan to determine if it includes those items required in subsection (b). The operations plan shall

be designed to produce the optimal water quality from the treatment process. The supplier shall operate its treatment plant in accordance with the approved plan.

(b) The operations plan shall consist of a description of the utility's treatment plant performance monitoring program, unit process equipment maintenance program, filter media inspection program, operating personnel, including numbers of staff, certification levels and responsibilities; how and when each unit process is operated; laboratory procedures; procedures used to determine chemical dose rates; records; response to plant and watershed emergencies; and reliability features.

§ 64662. Records.

(a) A supplier shall maintain accurate and complete operation records for each treatment plant that treats an approved surface water. The records shall include but not be limited to the following:

(1) The results of all monitoring conducted in accordance with sections 64654.8, 64655, 64656, 64656.5, and 64660;

(2) Dates on which filter maintenance and inspections were performed and the results of any inspections including pressure filter evaluations required by section 64660(b)(8);

(3) Quantity of water produced, plant flow rates, filtration rates, hours of operation, and backwash rates; and

(4) Dates and description of major equipment and process failures and corrective actions taken.

(b) Treatment plant records shall be retained for not less than three years, except where the State Board has determined that longer retention times are necessary to complete legal actions taken under the provisions of Health and Safety Code sections 116625 through 116675 and sections 116725 through 116730.

(c) A supplier using conventional or direct filtration treatment and serving fewer than 10,000 persons shall retain treatment plant records required pursuant to section 64656.5 indefinitely.

(d) A supplier shall comply with the recordkeeping requirements specified in section 64650(f)(1).

Article 6. Reporting

§ 64663. State Board Notification.

A supplier shall notify the State Board as soon as possible, but no later than by the end of the next business day, or within 24 hours, whichever is less, by telephone or other equally rapid means whenever:

(a) A combined filter effluent turbidity exceedance occurs pursuant to table 64663:

Table 64663
Combined Filter Effluent Turbidity Exceedances Requiring State Board Notification

If a supplier uses…	*And the turbidity of the combined filter effluent monitored and recorded pursuant to section 64655…*

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(1) Any filtration technology pursuant to section 64653	Exceeds 5.0 NTU at any time.
(2) Conventional or direct filtration treatment and serves 10,000 or more persons	(A) Exceeds 1 NTU for more than one continuous hour; (B) Exceeds 1 NTU at four-hour intervals; or (C) Exceeds 1.0 NTU for more than eight consecutive hours.
(3) Conventional or direct filtration treatment and serves fewer than 10,000 persons	(A) For a supplier using a grab sample monitoring program: 1. Exceeds 1 NTU; or 2. Exceeds 1.0 NTU in more than two consecutive samples taken every four hours; and (B) For a supplier using a continuous monitoring program: 1. If recording results at least once every 15 minutes, equals paragraph (2)(A); or 2. Equals paragraph (2)(B) or (2)(C).
(4) Diatomaceous earth or slow sand filtration	Exceeds 1.0 NTU in more than two consecutive samples taken every four hours.
(5) An alternative filtration technology pursuant to section 64653	Exceeds the maximum performance standard established pursuant to sections 64653(e), (f), (g), and (h).

(b) There is a failure to maintain a minimum disinfectant residual of 0.2 mg/L in the water being delivered to the distribution system. The supplier shall report whether or not the disinfectant residual was restored to at least 0.2 mg/L within four hours.

(c) An event occurs which may affect the ability of the treatment plant to produce a safe, potable water including but not limited to spills of hazardous materials in the watershed and unit treatment process failures.

(d) For a supplier avoiding filtration, the turbidity immediately prior to the first or only point of disinfectant application exceeds 5 NTU.

(e) A supplier discovers the occurrence of an acute infectious illness that may be potentially attributable to the water system.

§ 64664. Monthly Report.

(a) For each calendar month, a supplier shall submit a report to the State Board by the tenth day of the following month that includes the applicable information in this section for each treatment plant. The report shall be signed by the chief water treatment plant operator, plant superintendent, or other person directly responsible for the operation of the water treatment plant.

(b) The report shall include the following filtration monitoring results, obtained pursuant to section 64655, and related information:

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Table 64664–A
Combined Filter Effluent Data for Monthly Report

If a supplier uses…	*The supplier shall report…*
(1) Conventional or direct filtration treatment and serves 10,000 or more persons[a]	The total number of turbidity measurements and either: (A) The turbidity achieved 50, 90, 95, 98, and 99 percent of the time that the plant was producing water; and the date, time, and value of any turbidity measurements that exceed 1.0 NTU; or (B) The results of turbidity measurements recorded at intervals no greater than every four hours; all results that exceed 0.3 NTU, recorded at intervals no greater than every 15 minutes; and the number and percent of turbidity measurements that are less than or equal to 0.3 NTU, based on measurements recorded at intervals no greater than every 15 minutes.
(2) Conventional or direct filtration treatment and serves fewer than 10,000 persons[b], diatomaceous earth filtration, slow sand filtration[c], or an alternative filtration technology	(A) The total number of turbidity measurements; (B) The results of turbidity measurements; (C) The number and percent of turbidity measurements taken that are less than or equal to the performance standard specified for each filtration technology in section 64653 or as required for an alternative treatment process; (D) The date, time, and value of any turbidity measurements that exceed performance levels specified in section 64653 or as required for an alternative treatment process; and (E) The average daily turbidity level.

[a] A supplier shall review the data reported to ensure that it is not compromised by system or instrument maintenance, hardware or software problems, signal transmission problems, or for other technical reasons.
[b] A supplier monitoring pursuant to footnote (c) of table 64655 may report pursuant to paragraph (1)(A) in lieu of paragraphs (2)(B) through (2)(E).
[c] If the turbidity of the combined filter effluent is greater than 1.0 NTU in five percent or more of the measurements, a supplier shall also report the dates and results of total coliform sampling of the combined filter effluent prior to disinfection to demonstrate compliance with paragraph (4)(A) of table 64653.

Table 64664–B
Individual Filter Data for Monthly Report

If a supplier uses…	*The supplier shall include…*
(1) Conventional or direct filtration treatment and serves 10,000 or more persons	(A) Certification that individual filter turbidity monitoring was conducted pursuant to section 64655; (B) For an exceedance of section 64660(b)(7)(A), (b)(7)(B), or (b)(7)(C), a written explanation of the cause of the exceedance; (C) For an exceedance of section 64660(b)(7)(D) or (b)(7)(E), the filter number, turbidity measurements, and date(s) and time(s) of the exceedance(s); and either: 1. The obvious reason for the exceedance; or

	2. If the supplier is not able to identify an obvious reason for the abnormal filter performance, the filter profile produced pursuant to table 64660; and (D) For an exceedance of section 64660(b)(7)(F), certification that a self-assessment was conducted pursuant to table 64660.
(2) Conventional or direct filtration treatment and serves fewer than 10,000 persons	(A) The information in paragraphs (1)(A) and (1)(B); (B) For an exceedance of section 64660(b)(7)(D) or (b)(7)(E), the filter number, turbidity measurements, date(s) and time(s) of the exceedance(s); and, if known, the obvious reason for the exceedance. (C) For an exceedance of section 64660(b)(7)(F), the date the self-assessment was triggered and completed. If the self-assessment was triggered during the last four days of the month, the supplier may report to the State Board by the 14th of the following month the date the self-assessment was triggered and completed; and (D) For an exceedance of section 64660(b)(7)(G), certification that the CPE is required and the date it was triggered.

(c) The report shall include the following disinfection monitoring results obtained pursuant to section 64656:

(1) The date and duration of each instance when the disinfectant residual in water supplied to the distribution system is less than 0.2 mg/L and when the State Board was notified of the occurrence;

(2) The following information on samples taken from the distribution system to comply with section 64654(b)(2):

(A) The number of samples where the disinfectant residual is measured;

(B) The number of samples where only the heterotrophic plate count (HPC) is measured;

(C) The number of measurements with no detectable disinfectant residual and no HPC is measured;

(D) The number of measurements with no detectable disinfectant residual and HPC is greater than 500 colony forming units per milliliter;

(E) The number of measurements where only HPC is measured and is greater than 500 colony forming units per milliliter; and

(F) The value of V in the following formula:

$$V = \left[1 - \frac{(C + D + E)}{A + B}\right] \times 100$$

Where V = the percent of distribution system samples with a detectable residual,
A = the value in paragraph (2)(A) of this subsection,
B = the value in paragraph (2)(B) of this subsection,
C = the value in paragraph (2)(C) of this subsection,
D = the value in paragraph (2)(D) of this subsection, and
E = the value in paragraph (2)(E) of this subsection, and

(3) For each day the lowest measurement of residual disinfectant concentration in mg/L in the water entering the distribution system.

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(d) The report shall include the following raw, settled, and recycled filter backwash monitoring results obtained pursuant to section 64654.8:

(1) All raw water turbidity measurements taken during the month. If more than one sample is taken each day, the highest value of all samples taken that day may be reported in lieu of reporting all that day's values;

(2) All raw water coliform measurements taken during the month;

(3) Daily settled water turbidity for each day of the month. If more than one sample is taken each day, the highest value of all samples taken that day may be reported in lieu of reporting all that day's values; and

(4) Daily recycled water turbidity and flow for each day of the month that backwash water was recycled back into the treatment process. If more than one turbidity sample (or flow measurement) is taken each day, the highest value of all turbidity samples (or flow measurements) taken that day may be reported in lieu of reporting all that day's values.

(e) The report shall include a written explanation of the cause of any violation of performance standards specified in sections 64653 or 64654 and operating criteria specified in section 64660(b)(9).

(f) The report shall include a summary of water quality complaints and reports of gastrointestinal illness received from consumers.

(g) The report shall include the monthly reporting specified in section 64650(f)(1).

§ 64664.2. Supplemental Reports.

(a) A supplier shall submit supplemental reports to the State Board in accordance with table 64664.2:

Table 64664.2
Supplemental Reports

If a supplier uses…	*The supplier shall submit…*
(1) Conventional or direct filtration treatment and serves 10,000 or more persons	(A) Within 28 days of the exceedance of section 64660(b)(7)(F), the filter self-assessment report prepared pursuant to table 64660; and
	(B) Within 90 days of the exceedance of section 64660(b)(7)(G), the CPE prepared pursuant to table 64660.
(2) Conventional or direct filtration treatment and serves fewer than 10,000 persons	Within 120 days of the exceedance of section 64660(b)(7)(G), the CPE prepared pursuant to table 64660.

(b) A supplier shall comply with the supplemental reporting requirements specified in section 64650(f).

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Article 7. Sanitary Surveys

§ 64665. Watershed Requirements.

(a) All suppliers shall have a sanitary survey of their watershed(s) completed at least every five years. The first survey shall be completed by January 1, 1996.

(b) A report of the survey shall be submitted to the State Board not later than 60 days following completion of the survey.

(c) The survey and report shall include physical and hydrogeological description of the watershed, a summary of source water quality monitoring data, a description of activities and sources of contamination, a description of any significant changes that have occurred since the last survey which could affect the quality of the source water, a description of watershed control and management practices, an evaluation of the system's ability to meet requirements of this chapter, and recommendations for corrective actions.

§ 64665.5. Additional Requirements.

A supplier shall comply with the sanitary survey requirements specified in section 64650(f)(1).

Article 8. Public Notification

§ 64666. Consumer Notification.

(a) For water systems that filter approved surface water, the supplier shall notify persons served by the system whenever there is a failure to comply with any of the treatment requirements specified in sections 64652, 64653, 64653.5(b), and 64654(a) or performance standards specified in sections 64653(c) and (h) and 64654(b).

(b) For water systems that do not filter approved surface water, the supplier shall notify persons served by the system whenever:

(1) There is a failure to comply with sections 64652.5(b) through (k), sections 64652 and 64654(a), or section 64654(b);

(2) The turbidity level in a representative sample of the approved surface water immediately prior to the first or only point of disinfectant application exceeds 5 NTU; or

(3) The unfiltered approved surface water has been identified as a source of waterborne microbial disease outbreak.

(c) The notification required by either subsections (a) or (b) shall be given in accordance with sections 64463.1(a)(4) or 64463.4(a)(1), as required.

(d) For water systems that filter approved surface water, the supplier shall notify persons served by the system whenever there is a failure to comply with the monitoring requirements specified in sections 64655 or 64656. The notification shall be given in accordance with section 64463.7.

(e) For water systems that do not filter approved surface water, the supplier shall notify persons served by the system whenever there is a failure to comply with the monitoring requirements specified in sections 64652.5(b), (d), or (e), or 64656. The notification shall be given in accordance with section 64463.7.

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(f) If a supplier is unable to remove a source from service pursuant to section 64652.5(l), the supplier shall notify the State Board immediately, and notify persons served by the system pursuant to section 64463.1.

(g) A supplier shall comply with the public notification and special notice requirements of section 64650(f)(1).

Article 9. Indirect Potable Reuse: Surface Water Augmentation

§ 64668.05. Application.

In addition to meeting the applicable requirements of this Chapter, a water supplier whose approved surface water source of supply is augmented utilizing a Surface Water Source Augmentation Project (SWSAP) shall meet the requirements of this Article and the applicable requirements of Article 5.3 of Chapter 3.[1] For the purpose of this Article, the water supplier shall be referred to as a Surface Water Source Augmentation Project Public Water System (SWSAP PWS).

§ 64668.10. General Requirements and Definitions.

(a) Unless noted otherwise, as used in this Article, the following terms are defined as follows:

(1) "Augmented Reservoir" has the same meaning as defined in section 60301.120 of Article 1, Chapter 3.

(2) "Surface Water Source Augmentation Project" or "SWSAP" has the same meaning as defined in section 60301.851 of Article 1, Chapter 3.

(3) "Surface Water Source Augmentation Project Public Water System" or "SWSAP PWS" has the same meaning as defined in section 60301.852 of Article 1, Chapter 3.

(4) "Surface Water Source Augmentation Project Water Recycling Agency" or "SWSAP WRA" has the same meaning as defined in section 60301.853 of Article 1, Chapter 3.

(b) Prior to using an augmented reservoir as a source of supply, a SWSAP PWS shall submit an application for a domestic water supply permit or permit amendment, and have an approved joint plan with a SWSAP WRA, as required pursuant to section 60320.301(a), of Article 5.3, Chapter 3. The SWSAP PWS shall revise its emergency plan and operations plan required pursuant to sections 64660(c)(2) and 64661 to include the elements of the joint plan and, at a minimum, include the means of providing an alternative source of domestic water supply, a State Board-approved treatment mechanism, or other actions to be taken, to ensure a reliable supply of water is delivered that meets all drinking water standards, in the event that the surface water from the augmented reservoir, as a result of a SWSAP:

(1) Could not be or has not been treated to meet California drinking water standards;

(2) Has been degraded to the degree that it is no longer a safe source of drinking water, as determined by the State Board; or

[1] Article 5.3 of Chapter 3 may be found in the DDW's "Drinking Recycled Water-Related Regulations" located on DDW's Law Books webpage.

(3) Receives water that fails to meet the requirements of section 60320.308(d) of Article 5.3, Chapter 3.

(c) A SWSAP PWS shall demonstrate to the State Board and Regional Board that the SWSAP PWS has sufficient control over the operation of an augmented reservoir to ensure its ability to comply with the requirements of this Article and the applicable requirements in Article 5.3, Chapter 3.

(d) A SWSAP PWS with knowledge of a SWSAP WRA failing to meet a requirement of the SWSAP WRA's permit or a requirement of Article 5.3, Chapter 3, shall immediately notify the State Board.

§ 64668.20. Public Hearings.

A SWSAP PWS may not use an augmented reservoir without a domestic water supply permit or permit amendment for the use of the augmented reservoir as an approved surface water source, and unless the SWSAP PWS facilitates at least three public hearings held by the State Board and the SWSAP PWS does the following:

(a) In coordination with and with the assistance of the SWSAP WRA, develop information to be provided to the public at the public hearings and on the SWSAP PWS's Internet Web site. The information shall include, but not be limited to:

(1) descriptions of the SWSAP,

(2) identification of the municipal wastewater source for the SWSAP,

(3) descriptions of the treatment processes, monitoring, contingency plans, and

(4) the anticipated State Board and Regional Board permit provisions applicable to the SWSAP;

(b) Provide the State Board, for its review and written approval, the information the SWSAP PWS develops pursuant to subsection (a). Following the State Board's approval of the information, the SWSAP PWS shall place the information on a Web site managed and operated by the SWSAP PWS, and in a repository (such as a local public library) in a manner that provides at least 30 days of public access to the information prior to each public hearing. For each of the public hearings, the SWSAP PWS shall make copies of the information available to the public;

(c) No less than 30 days prior to placing the information required pursuant to subsections (a) and (b) in a repository, notify its customers and all public water systems that may receive drinking water impacted by the SWSAP of the following:

(1) the location and hours of operation of the repository,

(2) the Internet address where the information may be viewed,

(3) the purpose of the public hearing and the repository, along with a brief description of the project,

(4) the manner in which the public can provide comments, and

(5) the date, time, and location of the public hearing; and

(d) Deliver the public notification required pursuant to subsection (c), in a manner to reach all public water systems and persons whose source of drinking water may be impacted by the SWSAP. The manner of delivery shall be by direct mail and using one or more of the following methods:

(1) local newspaper(s) publication of general circulation, and

(2) television and/or radio broadcast locally.

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§ 64668.30. SWSAP Augmented Reservoir Requirements.

(a) The SWSAP PWS shall ensure that prior to augmentation of a surface water reservoir by a SWSAP, the surface water reservoir to be used as an augmented reservoir was in operation as an approved surface water supply pursuant to this Chapter for a period of time sufficient to establish a baseline record of the surface water reservoir's raw water quality (including, but not limited to, the monitoring required pursuant to section 60320.326, Chapter 3), and treated drinking water quality. A surface water reservoir shall have been operating as an approved surface water source for at least five years prior to receiving recycled municipal wastewater from a SWSAP, unless approved otherwise in writing by the State Board, but in no case less than two years.

(b) The SWSAP PWS shall ensure that a surface water reservoir used as an augmented reservoir has a minimum theoretical retention time of no less than that which has been approved by the State Board. Monthly, the SWSAP PWS shall calculate and record the theoretical retention time. The theoretical retention time shall be the value (in units of days) resulting from dividing the volume of water in the surface water reservoir at the end of each month, by the total outflow from the surface water reservoir during the corresponding month. The total outflow shall include, but not be limited to, all outflows and withdrawals from the surface water reservoir. An initial approved minimum theoretical retention time may be no less than 180 days.

(1) If a month's theoretical retention time is determined to be less than the SWSAP PWS's approved theoretical retention time, the SWSAP PWS shall, by the end of the subsequent month, submit a report to the State Board and Regional Board describing the corrective actions to be taken to ensure future theoretical retention times will be no less than the approved theoretical retention time.

(2) A SWSAP PWS may apply to the State Board, for written approval, for a reduced on-going alternative minimum theoretical retention time of less than 180 days, but no less than 60 days. The SWSAP PWS's application shall include all information requested by the State Board for its consideration of a proposed alternative minimum theoretical retention time, including the following:

(A) Evidence that the SWSAP PWS and SWSAP WRA have reliably and consistently met the requirements of this Article and Article 5.3, Chapter 3, under varying operating conditions;

(B) At the proposed alternative minimum theoretical retention time, the maximum anticipated recycled municipal wastewater flow to the surface water reservoir, the total anticipated outflows from the reservoir, and the total available flows of approved reservoir sources of supply;

(C) The maximum percent, by volume, of recycled municipal wastewater that will be delivered to the surface water reservoir during any 24-hour period, in accordance with subsection (c), at the proposed alternative minimum theoretical retention time;

(D) A description of total proposed treatment and total log10 reduction for enteric virus, Giardia cysts, and Cryptosporidium oocysts. For proposed alternative minimum theoretical retention times less than 120 days, no less than one log10 reduction of such pathogens beyond that otherwise required pursuant to this Article and Article 5.3, Chapter 3, shall be provided;

(E) The ability to adequately respond to potential SWSAP treatment failures in a timely manner, such that there is no interruption of drinking water, meeting all applicable standards, supplied to customers; and

(F) A demonstration that the alternative minimum theoretical retention time provides, based on information provided pursuant to subsection (b)(2), an equivalent or better level of protection of public health than otherwise required pursuant to this Article and Article 5.3, Chapter 3. If required by the State Board, the SWSAP PWS's demonstration shall include a review by an independent scientific advisory panel approved by the State Board.

(c) Prior to augmentation and whenever requested to do so by the State Board based on information that previous tracer studies or hydrodynamic modeling may not accurately reflect current conditions, the SWSAP PWS shall demonstrate to the State Board, utilizing tracer studies and hydrodynamic modeling, that at all times under all operating conditions, the volume of water withdrawn from the augmented reservoir to be ultimately supplied for human consumption contains no more than:

(1) one percent, by volume, of recycled municipal wastewater that was delivered to the surface water reservoir during any 24-hour period, or

(2) ten percent, by volume, of recycled municipal wastewater that was delivered to the surface water reservoir during any 24-hour period, with the recycled municipal wastewater delivered by the SWSAP WRA having been subjected to additional treatment producing no less than a 1-log10 reduction of enteric virus, *Giardia* cysts, and *Cryptosporidium* oocysts, as noted pursuant to section 60320.308(a)(2). With regard to the additional treatment:

(A) The additional treatment need not be a unique type of process from other treatment processes utilized by the SWSAP WRA to meet the requirements of section 60320.308.

(B) The SWSAP PWS, in consultation with the SWSAP WRA, shall obtain the additional treatment process information necessary for demonstrating that the requirements of subsection (c)(2) of this section, and section 60320.308(a)(2), will be met.

(d) To verify that the requirements of subsection (c) are being met, within the first six months of operation, under hydraulic conditions representative of normal SWSAP operations, the SWSAP PWS shall initiate a tracer study utilizing an added tracer. The results of the tracer study shall be used to validate the hydrodynamic modeling required in subsection (c). Prior to performing the tracer study, the SWSAP PWS shall submit a tracer study protocol for State Board review and written approval. The SWSAP PWS shall perform the verification required by this subsection whenever requested by the State Board.

(e) Notwithstanding a change in operation allowed pursuant to the SWSAP PWS's domestic water supply permit, prior to initiating a change in operation, including physical changes to the surface water reservoir, that may impact the hydraulic characterization utilized to determine compliance with the requirements of this section, the SWSAP PWS shall notify the State Board and:

(1) demonstrate that the hydraulic characterization used to comply with this section remains valid under the changed operation, or

(2) if requested by the State Board, demonstrate compliance pursuant to this section under the new hydraulic conditions.

(f) Unless directed otherwise by the State Board, a SWSAP PWS shall utilize an independent scientific advisory panel to meet the requirements of this section pertaining to the hydraulic characterization of the reservoir, including tracer study verifications and hydraulic modeling used to demonstrate compliance with subsection (c). The independent scientific advisory panel shall be approved by the State Board and include, at a minimum, a limnologist with experience modelling the hydraulic characterization of surface water reservoirs, or a limnologist and an individual with experience modelling the hydraulic characterization of surface water reservoirs. The SWSAP PWS shall allow State Board representatives, as guests, to join all independent scientific advisory panel meetings and discussions.

(g) Prior to augmentation of a surface water reservoir using a SWSAP, a SWSAP PWS shall submit a plan, for State Board review and approval, describing the actions the SWSAP PWS will take to assess and address potential impacts resulting from the introduction of advanced treated water into the SWSAP PWS's surface water treatment plant and, indirectly, into the drinking water distribution system. At a minimum, the plan shall address:

(1) maintaining chemical and microbial stability in the drinking water distribution system as the drinking water quality changes with anticipated increasing fractions of advanced treated water;

(2) maintaining treatment effectiveness throughout the surface water treatment plant as the source water quality changes with anticipated increasing fractions of advanced treated water in the reservoir;

(3) assessments to be performed prior to and during operation of the SWSAP with respect to paragraphs (1) and (2); and

(4) assessment outcomes of which the SWSAP PWS will notify the State Board.

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Chapter 17.5. Lead and Copper

Article 1. General Requirements and Definitions

§ 64670. General Requirements.

(a) Unless otherwise indicated, the requirements in this chapter apply to community water systems and nontransient-noncommunity water systems (hereinafter referred to as "water systems" or "systems").

(b) An action level exceedance shall not constitute a violation of this chapter.

(c) Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted using the methods prescribed at 40 Code of Federal Regulations, Section 141.89 [Federal Register (FR) 56 (110), 26460-26564, June 7, 1991; amended July 15, 1991 (56 FR 32113), June 29, 1992 (57 FR 28786), June 30, 1994 (59 FR 33860), and January 12, 2000 (65 FR 1250)]. Field tests shall be performed by water treatment or distribution operators certified by the Department pursuant to Section 106875 of the Health and Safety Code or by personnel trained to perform these tests by the Department, a certified laboratory, or certified operator.

(d) A new water system shall initiate compliance with this chapter within six months of distributing water to consumers. An existing system that changes size pursuant to the definitions in sections 64671.30, 64671.40 and 64671.70, shall initiate compliance with the requirements of this chapter applicable to the new size within six months.

§ 64671.05. Action Level.

"Action level", for the purpose of this chapter only, means the concentration of lead or copper in water that is used to determine the requirements of this chapter that a system shall meet.

§ 64671.08. Action Level Exceedance.

"Action level exceedance", for the purpose of this chapter only, means that the level of lead or copper is greater than the respective action level, as determined pursuant to section 64678(d) through (g).

§ 64671.09. Corrosion Control Treatment or CCT.

"Corrosion control treatment" or "CCT" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps without causing the water system to violate any primary drinking water standards.

§ 64671.10. Corrosion Inhibitor.

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

§ 64671.15. Detection Limit for Purposes of Reporting or DLR.

"Detection limit for purposes of reporting" or "DLR" means the designated minimum level at or above which any analytical finding of a contaminant in drinking water resulting from monitoring required under this chapter shall be reported to the Department.

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§ 64671.30. Large Water System.

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

§ 64671.35. Lead Service Line.

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

§ 64671.40. Medium-size Water System.

"Medium-size water system", for the purpose of this chapter only, means a water system that serves greater than 3,300 and less than or equal to 50,000 persons.

§ 64671.55. Period.

"Period", for the purpose of this chapter only, means a six-month monitoring timeframe.

§ 64671.65. Single-family Structure.

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

§ 64671.70. Small Water System.

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

§ 64671.75. Tap Sampling.

"Tap sampling" means sampling conducted pursuant to sections 64675 (General Requirements for Tap Sampling for Lead and Copper), 64675.5 (Tap Sampling Frequency), and 64677 (Sampling Collection Methods for Taps) at sites selected pursuant to section 64676 (Sampling Site Selection).

§ 64671.80. Water Quality Parameter or WQP.

"Water quality parameter" or "WQP", for the purposes of this chapter, means a characteristic or constituent of water, or a water treatment chemical added to water to control corrosion.

§ 64671.85. WQP Monitoring.

"WQP monitoring" means sampling conducted pursuant to sections 64680 (General WQP Monitoring Requirements), 64681 (Initial WQP Monitoring), and 64682 (WQP Monitoring Requirements after CCT Installation).

Article 2. Requirements According to System Size

§ 64673. Small and Medium-size Water System Requirements.

(a) The requirements in this section are applicable to all small and medium-size water systems.

(b) Each small and medium-size system shall conduct standard tap sampling for lead and copper pursuant to section 64675 (General Requirements for Tap Sampling for Lead and Copper). Tap sampling frequency may be reduced pursuant to section 64675.5 (Tap Sampling Frequency).

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(c) A small or medium-size system with an action level exceedance shall take the following steps:

(1) Monitor WQPs beginning with the first period after the exceedance, pursuant to section 64681 (Initial WQP Monitoring).

(2) Proceed with subparagraphs (A) through (E) if a corrosion control study is required by the Department based on a review of the system's water quality, distribution system, water treatment, and system features. If such a study is required, the Department will notify the system in writing within 12 months of the action level exceedance.

(A) Complete the study, pursuant to section 64683 (Corrosion Control Study Procedure), within eighteen months of being notified of the requirement; the system will be notified of the Department's designation within six months of the study's completion;

(B) Begin installation of the CCT designated by the Department, pursuant to section 64684 (CCT Installation and Operation), within twelve months of being notified of the Department's designation;

(C) Complete CCT installation and begin operation within 24 months of the designation;

(D) Complete two periods of standard tap sampling pursuant to section 64675 (General Requirements for Tap Sampling for Lead and Copper) and two periods of WQP monitoring pursuant to section 64682 (WQP Monitoring After CCT Installation) within 36 months of the designation; and

(E) Monitor WQPs and operate in compliance with the WQP levels specified by the Department pursuant to section 64684 (CCT Installation and Operation), beginning no later than within 42 months of the designation.

(3) If the Department does not require a corrosion control study, the system shall submit to the Department, within six months of the action level exceedance, a written recommendation for CCT. The Department may require the system to conduct additional WQP monitoring to assist in the review of the CCT recommendation. The Department will designate CCT and notify the system in writing within the following timeframes; the system shall then comply with paragraphs (2)(B) through (E):

(A) For medium-size systems, within 12 months of the exceedance, and

(B) For small-size systems, within 18 months of the exceedance;

(4) Monitor source waters, pursuant to article 6 (Source Water Requirements for Action Level Exceedances) of this chapter;

(d) A small or medium-size system with an action level exceedance for lead shall:

(1) Complete a lead public education program, pursuant to article 7 (Public Education Program for Lead Action Level Exceedances) of this chapter; and

(2) Replace lead service lines, pursuant to article 8 (Lead Service Line Requirements for Action Level Exceedances) of this chapter.

(e) A small or medium-size system that is required to comply with subsections (c) or (d) may cease completing the steps whenever the system does not have an action level exceedance during each of two consecutive periods. If any such system thereafter has an exceedance during any period, the system shall:

(1) Resume completion of the applicable steps, beginning with the first step that was not previously completed. The Department may require a system to repeat steps

previously completed if the Department determines that this is necessary to implement the requirements of this section, based on a review of the system's data and treatment status.

(2) Resume standard tap sampling pursuant to 64675 (General Requirements for Tap Sampling for Lead and Copper).

(3) Conduct WQP monitoring during the period in which the system exceeded the action level, pursuant to section 64682, (WQP Monitoring After CCT Installation) or 64684 (CCT Installation and Operation).

§ 64674. Large Water System Requirements.

(a) The requirements in this section are applicable to all large water systems.

(b) Each large system shall conduct standard tap sampling pursuant to section 64675 (General Requirements for Tap Sampling for Lead and Copper), and monitor for WQPs pursuant to section 64681 (Initial WQP Monitoring). Tap sampling frequency may be reduced pursuant to section 64675.5 (Tap Sampling Frequency).

(c) Each large system shall complete a corrosion control study, pursuant to section 64683 (Corrosion Control Study Procedure), unless it can meet one of the following criteria:

(1) The system submits the following documentation to the Department and the Department determines in writing that the system has optimized corrosion control based on its review of the submittal:

(A) The results of all test samples collected for each of the WQPs in section 64683(a)(3) (Corrosion Control Study Procedure);

(B) A report explaining the test methods used by the water system to evaluate corrosion control treatment alternatives pursuant to section 64683 (Corrosion Control Study Procedure), the results of all tests conducted, and the basis for the system's selection of CCT;

(C) A report explaining how CCT has been installed and is being operated pursuant to section 64684 (CCT Installation and Operation); and

(D) The results of tap sampling for lead and copper for two consecutive periods after corrosion control has been installed; or

(2) The system demonstrates for two consecutive periods that the difference between the 90th percentile tap sampling lead level and the highest source water monitoring result for each period is less than the reporting level for purposes of reporting (DLR), pursuant to subsections 64678 (a), (b) and (c) (Determination of Exceedances of Lead and Copper Action Levels), or that the source water lead levels are below the method detection level of 0.001 mg/L and the 90^{th} percentile lead level is equal to or less than the DLR for each period. In either case, the system shall also not have a copper action level exceedance. If such a system ceases to meet this criteria, it shall conduct a corrosion control study, pursuant to section 64683 (Corrosion Control Study Procedure) within eighteen months of not meeting the criteria, and proceed thereafter pursuant to subsection (e).

(d) Each large system that conducts a corrosion control study will be notified of the Department's designation for CCT within 6 months of the study's completion and shall comply with the following timeframes:

(1) Begin CCT installation within 12 months of being notified of the Department's designation for CCT.

(2) Complete CCT installation within 24 months of the Department's designation.

(3) Complete two periods of WQP monitoring and tap sampling for lead and copper within 36 months of the Department's designation.

(4) Operate in compliance with the WQP levels specified by the Department pursuant to section 64684 (CCT Installation and Operation), beginning no later than within 42 months of the Department's designation. WQP tap monitoring may be reduced as follows:

(A) Pursuant to section 64682(c) (WQP Monitoring After CCT Installation), if the system has no action level exceedance; or

(B) To once every three years at the reduced number of sites pursuant to table 64680–A, if the system has 90th percentile levels that do not exceed 0.005 mg/L for lead and 0.65 mg/L for copper for two consecutive periods.

(5) If source water treatment has been installed, conduct source sampling for lead and copper pursuant to section 64685 (Source Water Monitoring and Treatment Designation).

(e) A large system with an action level exceedance for lead shall:

(1) Monitor source waters, pursuant to article 6 (Source Water Requirements) of this chapter;

(2) Complete a lead public education program, pursuant to article 7 (Public Education Program for Action Level Exceedances) of this chapter; and

(3) Replace lead service lines, pursuant to article 8 (Lead Service Line Requirements) of this chapter.

(f) A large system with an action level exceedance for copper shall monitor source waters pursuant to article 6 (Source Water Requirements) of this chapter.

Article 3. Monitoring for Lead and Copper

§ 64675. General Requirements for Tap Sampling for Lead and Copper.

(a) During each period, each system shall conduct standard tap sampling by collecting one sample from the number of sites based on the number of people served specified in table 64675–A under Standard Tap Sampling.

(b) During each period, each system conducting reduced tap sampling shall collect at least one sample from the number of sites based on the number of people served specified in table 64675–A under Reduced Tap Sampling, as follows:

(1) The sites shall be representative of the sites required for standard tap sampling.

(2) The samples shall be collected during the months of June, July, August, or September, unless the Department approves an alternate set of four months based on a review of the system's operations and lead and copper data, in which case the system shall initiate sampling during the alternate set of four months when directed in writing to do so by the Department, as follows:

(A) No later than 21 months after the previous period, if sampling annually, or

(B) No later than 45 months after the previous period, if sampling triennially.

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Table 64675–A
Lead and Copper Tap Sampling Sites

System Size	*Standard Tap Sampling* (Minimum Number of Sites)	*Reduced* Tap Sampling (Minimum Number of Sites)
>100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
<101	5	5

(c) Sample sites shall be selected pursuant to section 64676 (Sample Site Selection).

§ 64675.5. Tap Sampling Frequency.

(a) A system shall conduct standard tap sampling for two consecutive periods; thereafter, tap sampling frequency may be reduced pursuant to section 64675 (General Requirements for Tap Sampling for Lead and Copper) as follows:

(1) If a system has 90th percentile levels that do not exceed 0.005 mg/L for lead and 0.65 mg/L for copper for two consecutive periods, it may reduce the sampling to once every three years at the reduced number of sites;

(2) For systems that do not meet the criteria in paragraph (1), after two consecutive periods with no action level exceedance, the frequency may be reduced to annually at the reduced number of sites, if the system receives written approval from the Department based on its review of the system's data. After sampling for three years (including the initial sampling year) with no action level exceedance, the frequency may be reduced to once every three years at the reduced number of sites, if the system receives written approval from the Department.

(b) If a system demonstrates for two consecutive periods that the difference between the 90th percentile tap sampling lead level and the highest source water monitoring result for each period is less than the reporting level for purposes of reporting (DLR), pursuant to subsections 64678(a), (b), and (c) or that the source water lead levels are below the method detection level of 0.001 mg/L and the 90th percentile lead level is equal to or less than the DLR for each period, the system shall conduct tap sampling once every three years.

§ 64676. Sample Site Selection.

(a) Each system shall identify a pool of sampling sites that:

(1) Is large enough to ensure that the water system can collect the number of lead and copper tap samples required in section 64675 (General Requirements for Tap Sampling for Lead and Copper);

(2) Meets the criteria in subsections (c) or (d), as applicable; and

(3) Does not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

(b) Prior to identifying sampling sites, each system shall conduct an evaluation of its distribution system to determine the construction materials (lead, copper, and galvanized steel) exposed to the water. If necessary to ensure the sample site criteria is met, the system shall collect additional information during the course of its normal operations (e.g., checking service line materials when reading water meters, or performance maintenance activities) and from the following:

(1) All plumbing codes, permits, and records in the files of the building department(s) that indicate the plumbing materials installed within publicly and privately owned structures connected to the distribution system;

(2) All inspections and records of the distribution system that indicate the material composition of the service connections connecting a structure to the distribution system; and

(3) All existing water quality information, which includes the results of prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

(c) Each community water system shall:

(1) Identify a sampling pool of "tier 1" sampling sites consisting of single-family structures except that, when multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may include these types of structures as "tier 1" sites in its sampling pool. The "tier 1" sampling sites shall

(A) Contain copper pipes with lead solder installed after 1982; or

(B) Contain lead pipes; or

(C) Be served by a lead service line.

(2) If there is an insufficient number of "tier 1" sites, complete its sampling pool with "tier 2" sampling sites, consisting of buildings, including multiple-family residences that:

(A) Contain copper pipes with lead solder installed after 1982; or

(B) Contain lead pipes; or

(C) Are served by a lead service line.

(3) If there is an insufficient number of "tier 1" and "tier 2" sampling sites, complete its sampling pool with "tier 3" sampling sites, consisting of single-family structures that contain copper pipes with lead solder installed before 1983. A system with an insufficient number of tier 1, 2 and 3 sites shall complete its sampling pool with representative sites (i.e., plumbing materials commonly found at other sites) throughout the distribution system.

(d) Each nontransient-noncommunity water system shall:

(1) Identify a pool of "tier 1" sampling sites consisting of buildings that:

(A) Contain copper pipes with lead solder installed after 1982; or

(B) Contain lead pipes; or

(C) Are served by a lead service line.

(2) If there is an insufficient number of "tier 1" sites that meet the criteria in paragraph (1), complete its sampling pool with sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the

system shall use representative sites (i.e., plumbing materials commonly found at other sites) throughout the distribution system.

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

(f) A system that does not have enough taps that can provide first-draw samples shall submit written documentation to the Department identifying standing times and locations for enough non-first-draw samples to make up its sampling pool by the start of its next monitoring period.

§ 64677. Sample Collection Methods for Taps.

(a) All tap samples for lead and copper collected pursuant to this chapter, with the exception of lead service line samples collected under section 64689 (Lead Service Line Sampling) and samples collected under subsection (d), shall be first-draw samples, pursuant to subsection (b).

(b) A first-draw sample shall be one liter in volume and have stood motionless in the plumbing system of each site for at least six hours, but not more than twelve. Samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. Samples from a non-residential building shall be collected at an interior tap from which water is typically drawn for consumption. Samples may be collected by the system or the system may allow residents to collect tap samples after instructing the residents of the sampling procedures specified in this section. To avoid problems of residents handling nitric acid, acidification of samples may be done up to 14 days after collection. After acidification to resolubilize the metals, the sample shall stand in the original container for the time specified by the method used pursuant to section 64670(c) before it can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(c) A system shall collect each tap sample from the same site from which it collected a sample during the previous period. If the system cannot gain entry to a site in order to collect a tap sample, it may collect the tap sample from another site in its sampling pool as long as the new site meets the same criteria, and is as close as possible to the original site.

(d) A system that does not have enough taps to supply first-draw samples may apply to the Department in writing to substitute non-first-draw samples. Such systems shall collect as many first-draw samples as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites.

§ 64677.5. Sample Invalidation.

(a) A lead or copper sample may be invalidated by the Department if at least one of the following conditions is met and documented in writing:

(1) The laboratory establishes that improper sample analysis caused erroneous results;

(2) The Department determines that the sample was taken from a site that did not meet the site selection criteria in section 64676 (Sample Site Selection);

(3) The sample container was damaged in transit;

(4) The Department determines the sample does not meet the requirements in section 64677(Sample Collection Methods for Taps); or

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

(b) To apply for invalidation of one or more samples, a system shall report the results of all samples for the period to the Department, including written documentation to support the system's belief that one or more samples should be invalidated.

(c) A sample invalidated pursuant to subsection (a) shall not count toward determining lead or copper 90th percentile levels or toward meeting any monitoring requirements in this chapter.

(d) The system shall collect replacement samples for any invalidated samples if, after the invalidation of one or more samples, the system has too few samples to meet the monitoring requirements of this chapter. Replacement samples taken after the end of the applicable period shall not be used to meet the monitoring requirements of a subsequent period. Replacement samples shall be collected as follows:

(1) As soon as possible, but no later than 20 days after the system receives notification from the Department that it has invalidated the sample, or by the end of the applicable period, whichever occurs later; and

(2) At the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

§ 64678. Determination of Exceedances of Lead and Copper Action Levels.

(a) The detection limits for purposes of reporting (DLRs) for lead and copper are as follows:

Table 64678–A. DLRs for Lead and Copper

Contaminant	*DLR (mg/L)*
Lead	0.005
Copper	0.050

(b) For purposes of determining the difference in concentration between the source water and the 90th percentile tap results, the following shall apply:

(1) Analytical results for lead greater than or equal to 0.001 mg/L and less than 0.005 mg/L shall be as measured or 0.0025 mg/L, whichever is greater.

(2) Analytical results for copper greater than or equal to 0.001 mg/L and less than 0.050 mg/L shall be as measured or 0.025 mg/L, whichever is greater.

(3) Analytical results below 0.001 mg/L for lead and copper shall be considered zero.

(c) Analytical results below the DLRs for lead and copper specified shall be reported as zero.

(d) The lead action level is exceeded if the concentration of lead in more than 10 percent of the tap water samples collected during any period is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

(e) The copper action level is exceeded if the concentration of copper in more than 10 percent of the tap water samples collected during any period is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(f) The 90th percentile lead and copper levels shall be computed as follows:

(1) The results of all lead or copper samples collected during a 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 period shall be multiplied by 0.9.

(3) The contaminant concentration in the numbered sample identified by the calculation in paragraph (f)(2) is the 90th percentile contaminant level.

(4) For water systems serving less than or equal to 100 people that collect 5 samples per period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

(g) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and submitted to the department for making any determinations.

§ 64678.5. Monitoring Waivers for Small Systems.

(a) A small water system may apply to the Department for a waiver to reduce the tap sampling frequency for lead and copper to once every nine years, and shall continue tap sampling as required by this chapter until it receives written notification from the Department that the waiver has been approved.

(b) A system that meets the following materials and monitoring criteria for both lead and copper will be granted a full waiver, while a system that meets both sets of criteria for only one of the chemicals will be granted a partial waiver that covers only that chemical.

(1) To meet the materials criteria, a system shall provide certification and documentation that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, satisfy the following:

(A) For lead, the system shall be free of the following lead-containing materials:

1. Plastic pipes that contain lead plasticizers, or plastic service lines that contain lead plasticizers; and

2. Lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless the utility can demonstrate to the Department that such fittings and fixtures will not leach lead into the drinking water.

(B) For copper, the system shall be free of copper pipes and copper service lines.

(2) To meet the monitoring criteria, the system shall have completed at least one period of standard tap sampling and demonstrate that the 90^{th} percentile levels for all periods of tap sampling conducted since the system became free of all lead-containing and/or copper-containing materials, as appropriate, do not exceed the following:

(A) For lead, 0.005 mg/L.

(B) For copper, 0.65 mg/L.

(c) If granted a waiver, the system shall

(1) Comply with any requirements that the Department includes as conditions of the waiver, such as limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver;

(2) Conduct tap sampling at the reduced number of sites for one period every nine years for the chemical(s) for which the waiver has been granted;

(3) Provide the materials certification specified in paragraph (b)(1) for the chemical(s) for which the waiver has been granted, along with the monitoring results; and

(4) If the waiver was granted for only one chemical, continue to monitor pursuant to this chapter for the other chemical.

(d) If the system continues to satisfy the requirements of subsections (b) and (c), the waiver will be renewed automatically, unless the Department notifies the system in writing that the waiver has been revoked and why. A system whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and monitoring criteria in subsection (b) and (c).

(e) If a system with a waiver adds a new source of water or changes any water treatment, the Department may require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials, require additional tap sampling periods), if it deems such modifications are necessary to address treatment or source water changes at the system.

(f) If a system with a waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, it shall notify the Department in writing no later than 60 days after becoming aware of such a change.

(g) If a system with a waiver that has been collecting samples during the months of June, July, August and September receives Department approval for an alternate set of months pursuant to section 64675(b)(2) (General Requirements for Tap Sampling for Lead and Copper), it shall conduct its next tap sampling before the waiver expires.

§ 64679. Supplemental Monitoring.

A water system with a lead action level exceedance shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample.

Article 4. Water Quality Parameter (WQP) Monitoring

§ 64680. General WQP Monitoring Requirements.

(a) WQP tap monitoring shall be:

(1) Representative of water quality throughout the distribution system, by considering the number of persons served, the different sources of water and treatment methods employed, and seasonal variability;

(2) Not restricted to sites targeted for lead and copper sampling; and

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(3) Include two samples for each applicable WQP during each period, from the standard number of sites, based on the number of persons served, specified in table 64680–A.

Table 64680–A
WQP Tap Monitoring Sites

System Size	*Standard Tap Monitoring (Minimum Number of Sites)*	*Reduced Tap Monitoring (Minimum Number of Sites)*
>100,000	25	10
10,001 to 100,000	10	7
3,301 to 10,000	3	3
501 to 3,300	2	2
101 to 500	1	1
<101	1	1

(b) Initial WQP monitoring at the entry point(s) to the distribution system shall be two samples for each applicable WQP at each entry point from locations representative of each source after treatment. After the installation of CCT, only one sample is required at each entry point. If a system draws water from more than one source and the sources are combined before distribution, the system shall sample at each entry point during normal operating conditions.

§ 64681. Initial WQP Monitoring.

For initial WQP monitoring, each system shall monitor for the following WQPs, pursuant to section 64680 (General WQP Monitoring Requirements):

(a) pH;
(b) Alkalinity;
(c) Orthophosphate, when an inhibitor containing a phosphate compound is used;
(d) Silica, when an inhibitor containing a silicate compound is used;
(e) Calcium;
(f) Conductivity; and
(g) Water temperature.

§ 64682. WQP Monitoring After CCT Installation.

(a) Each system that installs CCT shall monitor the following WQPs, pursuant to section 64680 (General WQP Monitoring Requirements), as applicable:

(1) At taps:
(A) pH;
(B) Alkalinity;
(C) Orthophosphate, when an inhibitor containing a phosphate compound is used;
(D) Silica, when an inhibitor containing a silicate compound is used;
(E) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(2) At each entry point to the distribution system every two weeks as a minimum:
(A) pH;

(B) When alkalinity is adjusted as part of CCT, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and

(C) When a corrosion inhibitor is used as part of CCT, a reading of the dosage rate of the inhibitor used, and the concentration of the active ingredient(s).

(b) A ground water system may use entry points that are representative of water quality and treatment conditions throughout the system for the monitoring required in paragraph (a)(2) as follows:

(1) If waters from untreated and treated groundwater sources mix, the system shall monitor entry points representative of each;

(2) Prior to monitoring, the system shall submit written documentation to the Department identifying the sites and demonstrating that they are representative.

(c) Subject to the Department's written approval, a system that has no action level exceedance and meets the Department-specified WQP values or ranges may reduce tap monitoring as follows:

(1) After two consecutive periods during which it has met the WQP values or ranges, the system shall monitor each period at the reduced number of sites, pursuant to table 64680–A;

(2) After three consecutive years (including the initial sampling year) during which it has met the WQP values or ranges, the system shall monitor annually at the reduced number of sites at evenly-spaced intervals throughout the year; and

(3) After three consecutive years of annual monitoring during which the system meets the WQP values or ranges, the system shall monitor once every three years at the reduced number of sites at evenly-spaced intervals throughout the monitoring year.

Article 5. Corrosion Control

§ 64683. Corrosion Control Study Procedure.

(a) Each system conducting a corrosion control study shall:

(1) Evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the CCT for that system:

(A) Alkalinity and pH adjustment;

(B) Calcium hardness adjustment; and

(C) The addition of a corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration throughout the distribution system.

(2) Evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documentation of such treatments from systems of similar size, water chemistry and distribution system configuration.

(3) Measure the following WQPs in any tests conducted under this subsection before and after evaluating the corrosion control treatments listed above:

(A) Lead;

(B) Copper;

(C) pH;

(D) Alkalinity;

(E) Calcium;
(F) Conductivity;
(G) Corrosion control inhibitor active ingredient (when an inhibitor is used);
(H) Water temperature.

(4) Identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one of the following:

(A) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality characteristics; and/or

(B) Data and documentation demonstrating that the 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.

(5) Evaluate the effect of the chemicals used for corrosion control treatment on other water treatment processes.

(6) Recommend to the Department in writing the treatment option that the corrosion control studies indicate constitutes CCT for that system on the basis of an analysis of the data generated during each evaluation. The water system shall provide a rationale for its recommendation along with all supporting documentation specified in paragraphs (a)(1) through (5) of this section.

(b) Based on the study conducted pursuant to subsection (a), and a system's recommended treatment alternative, the Department will either approve the corrosion control treatment option recommended by the system, or designate alternative corrosion control treatment(s) from among those listed in paragraph (a)(1) of this section, notify the system of its decision on CCT in writing and explain the basis for its determination. If the Department requests additional information to aid its review, the water system shall provide the information.

§ 64684. CCT Installation and Operation.

(a) Each system shall install and operate throughout its distribution system the CCT designated by the Department in subsection 64683(b) (Corrosion Control Studies) or paragraph 64673(c)(3) (Small and Medium-size Water System Requirements) and monitor WQPs pursuant to section 64682 (WQP Monitoring After CCT Installation). When the system completes its installation of CCT, it shall submit a letter to the Department certifying that it has done so.

(b) After the system installs CCT, the Department will review the treatment and pre- and post-treatment tap sampling and WQP monitoring data and specify WQPs in writing within 42 months of its CCT designation as follows:

(1) A minimum value or a range of values for pH measured at each entry point to the distribution system;

(2) A minimum pH value of 7.0 or greater, measured in all tap samples, unless the Department determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the 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 entry point to the distribution system

and in all tap samples, that the Department determines is necessary to maintain a passivating film on the interior walls of the pipes of the distribution system;

(4) If alkalinity is adjusted as part of CCT, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to 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; and

(6) Values for additional WQPs determined by the Department to reflect CCT for the system.

(c) After the Department specifies WQP values and ranges, each system shall monitor pursuant to section 64680 (General WQP Monitoring Requirements) and maintain WQPs as specified by the Department.

(d) A system shall be out of compliance with the WQP values and ranges specified by the Department pursuant to subsection (b) for any period during which it has excursions for more than nine days.

(1) An excursion occurs when a "daily value" at one or more sample sites for one or more WQPs in a day is below the minimum value or outside the range of Department-specified WQPs.

(2) A "daily value" for a WQP at a site is determined as follows:

(A) If sampling is more than once a day by continuous monitoring, grab sampling or both, the daily value shall be the average of all the day's results at the sampling site.

(B) If sampling is once a day, the daily value shall be the day's result.

(C) If sampling is less than once a day, the daily value shall apply to the day that the water supplier receives the result from the laboratory or the 30th day after the sample is collected, whichever comes first.

(3) When an excursion occurs, within 48 hours of being notified of the results of the initial sample(s), the system shall investigate the cause and collect a followup sample at each affected site for each WQP that did not meet the Department-specified values. The criteria in paragraphs (d)(1) and (2) shall be applied to the followup sample results to determine if another excursion has occurred.

(e) A system conducting reduced WQP tap monitoring that fails to meet the Department-specified WQPs shall resume standard WQP tap monitoring pursuant to section 64680 (General WQP Monitoring Requirements).

(f) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and submitted to the Department for making any determinations (i.e., determining concentrations of WQPs).

(g) Upon its own initiative or in response to a request by a system, the Department may modify in writing its designation of CCT or its specified WQP values and ranges if it determines that modification is necessary to ensure that the system continues to maintain CCT. Any request shall be in writing, explain the reason for the requested modification, and include supporting documentation.

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Article 6. Source Water Requirements for Action Level Exceedances

§ 64685. Source Water Monitoring and Treatment Designation.

(a) Within six months of an action level exceedance, a system shall:

(1) Collect one lead and copper source water sample from each entry point to the distribution system that is representative of the source or combined sources and is collected after any treatment, if treatment is applied before distribution;

(2) In writing, either recommend to the Department the installation and operation of a source water treatment (ion exchange, reverse osmosis, lime softening, or coagulation/filtration) or demonstrate that source water treatment is not needed to minimize lead and copper levels at users' taps; and

(3) Submit any additional information requested by the Department to aid in its determination of whether source water treatment is necessary to minimize lead and copper levels in water delivered to users' taps.

(b) The Department will make a determination regarding source water treatment within six months after submission of monitoring results under subsection (a).

§ 64686. Requirements Subsequent to the Department's Designation.

(a) If the Department determines that source water treatment is required pursuant to subsection 64685(b), the system shall comply with the following within the specified timeframes that begin with the Department's determination regarding source water treatment:

(1) Install the treatment within 24 months and submit a letter to the Department certifying that installation has been completed;

(2) Collect an additional source water sample from each entry point to the distribution system during two consecutive periods within 36 months;

(3) Complete two consecutive periods of standard monitoring for lead and copper pursuant to section 64675 (General Requirements for Tap Sampling for Lead and Copper) within 36 months.

(b) Within 6 months after the system installs source water treatment, based on its review of the data collected pursuant to subsection (a) and the contaminant removal capability of the installed treatment when properly operated, the Department will specify maximum permissible lead and copper levels for water entering the distribution system. The water system shall comply with these maximum permissible levels.

(c) After the Department specifies maximum permissible levels or determines that source water treatment is not needed, the system shall conduct standard monitoring related to source water pursuant to table 64686–A, according to source water type. If approved by the Department based on a review of source water data, the system may reduce monitoring pursuant to table 64686–A.

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Table 64686–A. Standard and Reduced Monitoring Related to Source Water

Type of monitoring	*Ground water*	*Surface water with or without groundwater*
Standard monitoring	1 sample at each entry point every 3 years, as a minimum	1 sample at each entry point every year, as a minimum
Reduced monitoring, after 3 consecutive rounds of standard monitoring in compliance with maximum permissible levels.	1 sample at each entry point every 9 years	1 sample at each entry point every 9 years

(d) If a system does not have an action level exceedance for lead and/or copper during three consecutive years for groundwater or one year for surface water with or without groundwater, the system is not required to conduct sampling related to source water for the specific chemical.

(e) If the results of sampling indicate an exceedance of the maximum permissible levels specified pursuant to subsection (b), one additional sample may be collected at the same sampling point as soon as possible within 14 days of the initial sample to confirm the result. If a confirmation sample is collected, then the average of the initial and confirmation sample results shall be used to determine compliance with the maximum permissible levels.

(f) A water system that begins using a new water source shall reinitiate standard monitoring pursuant to subsection (c) and conduct three rounds of monitoring with the new source online before reducing the monitoring frequency.

(g) Upon its own initiative or in response to a request by a system, the Department may modify its determination of the source water treatment, or maximum permissible lead and copper concentrations for treated source water. Any request shall be in writing, explain the reason for the requested modification, and include supporting documentation.

Article 7. Public Education Program for Lead Action Level Exceedances

§ 64687. Lead Public Education Program Content and Delivery.

(a) Each system with a lead action level exceedance shall conduct a lead public education program that includes delivery of the following public education materials pursuant to subsection (d). Within 10 days after the period during which the program was required, the system shall submit a letter to the Department demonstrating that it has delivered the public education materials as required and include a list of all the newspapers, radio stations, television stations, facilities and organizations to which the system delivered the materials during the previous year.

(1) Except as provided in subsection (b), a community water system shall include the following text in all of the printed materials it distributes through its lead public education program:

(A) Introduction. The California Department of Health Services (DHS), the U.S. Environmental Protection Agency, 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 state and federal action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under state and 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 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

1. 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 U.S. Environmental Protection Agency estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

2. 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%. In California, a similar law prohibiting the use of both lead solder and lead pipe was enacted in 1985.

3. 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

1. 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].

2. 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:

A. Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in 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 to 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 one or two 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. 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.

B. 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.

C. 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.

D. 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 California Department of Health Services and your local environmental health department about the violation.

E. 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 record of building permits which should be maintained in the files of the [insert name of department that issues building permits]. A licensed plumber can at the same time check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than 15 ppb to drinking water, after our comprehensive treatment program is in place, we are required to replace the portion of the line we own. If the line is only partially owned by the [insert name of the city, county, or water system that owns the line], we are required to provide the owner of the privately-owned portion of the service line with information on how to replace the privately-owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we also are required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample at our expense from the line within 72 hours after the partial replacement, and to mail or otherwise provide you with the results of that sample within three business days of receiving the results. Acceptable replacement alternatives include copper, stainless steel, and plastic pipes. Partial replacement should avoid the creation of mixed piping systems and include the installation of approved dielectric couplings at all dissimilar metal interfaces.

F. 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.

3. 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. Since these treatments remove dissolved minerals, water treated by these devices will have a greater tendency to leach lead from brass faucets or fittings which the water contacts after treatment. 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. The California Department of Health Services certifies the effectiveness of

home treatment devices. Only devices certified by the California Department of Health Services to remove lead should be used for this purpose.

B. Purchase bottled water for drinking and cooking.

4. 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:

A. [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 certified by the California Department of Health Services for testing water quality;

B. [insert the name of 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 plumbing contractors that plumbed your home; and

C. California Department of Health Services, Childhood Lead Poisoning Prevention Branch at [insert the phone number] or the [insert the name of the city or county health department] at [insert phone number] can provide you with information about the health effects of lead and how you can have your child's blood tested.

5. The following is a list of some state approved 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].

(2) Except as provided in subsection (b), a nontransient-noncommunity water system shall include either the text in paragraph (a)(1) or the following text, in all of the printed materials it distributes through its lead public education program.

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

(B) Health Effects Of Lead. Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with

sources of lead contamination — like dirt and dust — that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

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

2. 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%.

3. 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. Steps you can take to reduce exposure to lead in drinking water include:

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 plumbing the more lead it may contain. Flushing the tap means running the cold water faucet for about 15–30 seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one gallon of water.

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

3. 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.

4. 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:

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

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

(b) Any additional information presented shall be consistent with the information in subsection (a) and be in plain language that can be understood by laypersons. A system may delete information pertaining to lead service lines, on approval by the Department, if the water system does not have any such lines. Building permit record availability and consumer access to these records may be modified, if approved by the Department.

(c) The system shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:

(1) 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 cost per sample]. You can contact the [insert the name of the city or water system] for information on testing and on simple ways to reduce your exposure to lead in drinking water.

(2) 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 water system].

(d) The system shall conduct the lead public education program as follows:

(1) In communities where a significant proportion of the population speaks a language other than English, public education materials shall be communicated in the appropriate language(s).

(2) Within 60 days after it has a lead action level exceedance, unless it is already conducting a lead public education program, a community water system shall:

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

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

(C) Deliver pamphlets and/or brochures that contain the public education materials in subparagraphs (a)(1)(B) and (D) to facilities and organizations, including the following:

1. Public schools and/or local school boards;
2. City or county health department;
3. Women, Infants, and Children and/or Head Start Program(s) whenever available;
4. Public and private hospitals and/or clinics;
5. Pediatricians;
6. Family planning clinics; and
7. Local welfare agencies.

(D) Submit the public service announcement in subsection (c) to at least five of the radio and television stations with the largest audiences that broadcast to the community served by the system.

(3) A community system shall repeat the tasks in subparagraphs (d)(2)(A),(B) and (C) every 12 months, and the tasks in subparagraph (d)(2)(D) every 6 months for as long as the system has a lead action level exceedance.

(4) Within 60 days after it has a lead action level exceedance, unless it is already conducting a lead public education program, a nontransient-noncommunity system shall deliver the public education materials in paragraphs (a)(1) or (a)(2) as follows:

(A) Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

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

(5) A nontransient-noncommunity system shall repeat the tasks in paragraph (4) at least once during each calendar year in which the system has a lead action level exceedance.

(6) A system may discontinue the lead public education program if it does not have a lead action level exceedance during the most recent period. The system shall recommence the program pursuant to this section if it subsequently has a lead action level exceedance.

(7) A community water system may apply to the Department, in writing, to use the text in paragraph (a)(2) in lieu of the text in paragraph (a)(1) and to perform the tasks listed in paragraphs (d)(4) and (c)(5) of this section in lieu of the tasks in paragraphs (d)(2) and (d)(3) of this section if:

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

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

(8) A community water system serving 3,300 or fewer people may omit the task contained in subparagraph (d)(2)(D). As long as it distributes notices containing the information contained in paragraph (a)(1) of this section to every household served by the system, such systems may further limit their public education programs as follows:

(A) Systems serving 500 or fewer people may forego the task contained in subparagraph (d)(2)(B). Such a system may limit the distribution of the public education materials required under subparagraph (d)(2)(C) to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children, unless notified by the Department in writing that it shall make a broader distribution.

(B) If approved by the Department in writing, a system serving 501 to 3,300 people may omit the task in subparagraph (d)(2)(B) and/or limit the distribution of the public education materials required under subparagraph (d)(2)(C) to facilities and

organizations served by the system that are most likely to be visited regularly by pregnant women and children.

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

Article 8. Lead Service Line Requirements for Action Level Exceedances

§ 64688. Lead Service Line Replacement.

(a) A system shall replace lead service lines if:

(1) It has a lead action level exceedance in tap samples after installing corrosion control and/or source water treatment (whichever sampling occurs later) and/or

(2) It is in violation for failure to install source water treatment or CCT.

(b) Within 6 months after it has a lead action level exceedance, the system shall demonstrate in writing that it has conducted a materials evaluation including that in section 64676 (Sample Site Selection) to identify the initial number of lead service lines in its distribution system, and shall submit both the demonstration and a schedule for complying with subsection (c) to the Department.

(c) Except as provided in subsection (e), a system that is required to conduct lead service line replacement shall annually replace at least 7 percent of the initial number of lead service lines in its distribution system, pursuant to the following.

(1) At the time the lead service line replacement begins, the system shall identify the initial number of lead service lines in its distribution system based on the evaluation in section 64676 (Sample Site Selection).

(2) The first year of lead service line replacement shall begin on the date the system first had a lead action level exceedance subsequent to its installation of CCT and, if required pursuant to section 64686, source water treatment.

(3) The system is not required to replace an individual lead service line if the lead concentration in each and every service line sample from that line, taken pursuant to the section 64687 (Lead Service Line Sampling), is less than or equal to 0.015 mg/L.

(4) The system shall replace that portion of the lead service line that it owns and keep ownership documentation in its files and offer to replace the building owner's portion of the line with the cost being borne by the building owner. If the building owner does not accept the offer, the system shall:

(A) At least 45 days prior to commencing the partial replacement, notify the resident(s) of all buildings served by the line that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures they may take to minimize their exposure. If the replacement is in conjunction with emergency repairs, the Department will allow a shorter notice, depending on the nature of the emergency and the timing involved. The notice shall be mailed unless an alternate method is approved by the Department, based on the feasibility of insuring that all consumers receive the notice; and

(B) Inform the resident(s) that the system will collect a first flush tap water sample within 72 hours after the partial replacement of the service line has been completed if the resident(s) so desire. If the resident(s) accept the offer, the system shall collect the sample and report the results to the resident(s) and the owner within three business days of receiving the results and to the Department.

(d) Within 12 months after the lead action level exceedance, and every 12 months thereafter, the system shall submit in writing to the Department the number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule, along with the following information to the Department:

(1) The number and location of each lead service line replaced during the previous year of the system's replacement schedule to demonstrate that it has replaced at least 7 percent of the initial lead service lines within the previous 12 months, or a greater number of lines if required by the Department; or

(2) Lead service line sampling results that demonstrate that the lead level from an individual line(s) is less than or equal to 0.015 mg/L, pursuant to section 64689 (Lead Service Line Sampling). The system shall submit the results of the lead service line sampling including the lead levels, location of each lead service line sampled, the sampling method, and the date of sampling. It shall also include the number and location of each lead service line replaced during the previous year. In such cases, the total number of lines replaced and/or that meet the criteria shall equal at least 7 percent of the initial number of lead lines identified or the percentage required by the Department.

(e) A system shall replace lead service lines at a faster rate than that required by subsection (b), taking into account the number of lead service lines in the system, if the Department determines either that this is necessary based on elevated blood lead levels in the population served, or that it is feasible to complete the lead service line replacement program in a shorter time without increasing the water rates to the customers.

(f) A system may cease replacing lead service lines when it has two consecutive periods without a lead action level exceedance. If the system has a lead action level exceedance during any subsequent period, it shall recommence replacing lead service lines.

§ 64689. Lead Service Line Sampling.

(a) Each lead service line sample shall be one liter in volume and have stood motionless in the lead service line for at least six hours, but not more than twelve.

(b) Lead service line samples shall be collected in one of the following three ways:

(1) At the tap after flushing the volume of water between the tap and the lead service line. The volume of water to be 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 change in temperature that would be indicative of water that has been standing in the lead service line.

NOTE: This publication is meant to be an aid to the staff of the State Board's Division of Drinking Water and should not be relied upon by the regulated community as the State of California's representation of the law. The published codes are the only official representation of the law. Refer to the published codes—in this case, Titles 17, 22, and 23 of the CCR—whenever specific citations are required. Statutes related to the State Board's drinking water-related activities are in the Health & Safety Code, the Water Code, and other codes.

Article 9. Reporting and Recordkeeping

§ 64690.10. Data Reporting.

Each system shall report the following within the first 10 days after the end of each period during which such sampling or monitoring was conducted:

(a) For lead and copper tap sampling:

(1) The results of all tap samples including the location of each site and the associated tier criteria from section 64676 (Sample Site Selection);

(2) The 90th percentile lead and copper concentrations calculated pursuant to section 64678 (Determination of Exceedances of Lead and Copper Action Levels); and

(3) With the exception of the first period of tap sampling, an identification of any site that was not sampled during previous periods, along with an explanation of why the sampling site was changed;

(b) For WQP monitoring, the results of all samples collected and analyzed pursuant to article 4 (WQP Monitoring) of this chapter;

(c) For source water monitoring:

(1) The results for all samples related to source water collected and analyzed under article 6 (Source Water Requirements for Action Level Exceedances) of this chapter; and

(2) With the exception of the first round of sampling related to source water, an identification of any site that was not sampled during previous periods along with an explanation of why the sampling point was changed; and

(d) The results for any samples collected and analyzed for lead and copper or WQPs in addition to those required by this chapter.

§ 64690.80. Recordkeeping.

Any system subject to the requirements of this chapter shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Department determinations, and any other information required by this chapter. Each water system shall retain the records required by this section for no fewer than 12 years or two compliance cycles (as defined in Section 64400.20), whichever is longer.

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Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 3.5 Urban Water Use Efficiency and Conservation

Article 1. Water Loss Performance Standards for Urban Retail Water Suppliers

§ 980. Definitions.

As used in this Article:

(a) "Active leak detection" means a leak control strategy utilizing the appropriate combination of leak detection surveys and continuous monitoring of flows to proactively detect and locate leaks in water distribution systems owned or operated by urban retail water suppliers.

(b) "Annual audit" means the validated annual water loss audit submitted by an urban retail water supplier pursuant to Water Code 10608.34, subdivision (b).

(c) "Annual background leakage" means the estimated fraction of real loss that is not detected by active leak detection in a distribution system, in acre-feet per year. The default value shall be the value calculated in accordance with section 982, subdivision (a)(1).

(d) "Annual reported leakage" means the total volume of real loss occurring due to reported leaks on mains and reported leaks in lateral and service lines, in acre-feet per year. Reported leakage is a component of real loss. The default value shall be the value calculated in accordance with section 982, subdivision (a)(2).

(e) "Annual unreported leakage" means the average baseline real loss that remains after deducting the annual reported leakage and the annual background leakage from the average baseline real loss, in acre-feet per year. Unreported leakage is a component of real loss. The default value shall be the value calculated in accordance with section 982, subdivision (a)(3).

(f) "Apparent losses" mean losses in customer consumption attributed to inaccuracies associated with customer metering, systematic data handling errors, plus unauthorized consumption (theft or illegal use of water), as reported in the annual audit as "apparent losses."

(g) "Appurtenances" are valves (for example, isolation, automatic control, and air), fire hydrants, meters, and any other asset associated with the water distribution and transmission network that are additional to the pipe assets themselves. Leaks on appurtenances may be accounted for in the "mains" or "laterals and service lines" categories, as long as the accounting stays consistent.

(h) "Average annual rise in price of water" means the average expected increase in water price in real (inflation-adjusted) terms, expressed as a percent. Unless a supplier

uses its own value in accordance with section 984(b)(1), the default value shall be 4.2 percent.

(i) Average baseline apparent loss" means the average of the apparent losses reported in the annual audits submitted for the baseline period.

(j) "Average baseline real loss" means the average of the real losses reported in the annual audits submitted for the baseline period. If the real loss submitted for any year is a negative value, that value will be replaced by zero for purposes of averaging the baseline real loss.

(k) "Average duration between reporting and repair of reported leaks on laterals and service lines" means the average duration between the time when the urban retail water supplier becomes aware of a leak occurring on lateral and service lines and the time when it repairs the leak, in days, rounded to the closest whole number. Unless a supplier uses its own values as indicated in this article, the default value shall be 8 days.

(l) "Average duration between reporting and repair of reported leaks on mains" means the average duration between the time when the urban retail water supplier becomes aware of a leak occurring on mains and the time when it repairs the leak, in days, rounded to the closest whole number. Unless a supplier uses its own values as indicated in this article, the default value shall be 3 days.

(m) "Average flow rate for reported leaks on laterals and service lines" means the average real loss from reported leaks occurring on lateral or service lines, in gallons per minute per leak. Unless a supplier uses its own values as indicated in this article, the default value shall be 7 gallons per minute per leak.

(n) "Average flow rate for reported leaks on mains" means the average real loss from reported leaks occurring on mains, in gallons per minute per leak. Unless a supplier uses its own values as indicated in this article, the default value shall be 50 gallons per minute per leak.

(o) "Average leak detection survey frequency" is the average rate at which a supplier conducts active leak detection on a length of pipeline, in miles per month. Unless a supplier uses its own values as indicated in this article, the default values shall be as follows:

(1) For urban retail water suppliers with average length of mains less than 500 miles, average length of mains, in miles, divided by 24 months;

(2) For urban retail water suppliers with average length of mains equal to or more than 500 miles, but less than 1,000 miles, average length of mains, in miles, divided by 30 months;

(3) For urban retail water suppliers with average length of mains equal to or more than 1,000 miles, but less than 4,000 miles, average length of mains, in miles, divided by 36 months; and

(4) For urban retail water suppliers with average length of mains equal to or more than 4,000 miles, but less than 6,000 miles, 114 miles per month.

(5) For urban retail water suppliers with average length of mains equal to or more than 6,000 miles, 130 miles per month.

(p) "Average length of mains" means the average of the values of total length of pipelines owned or operated by the urban retail water supplier reported as "length of mains" in the annual audits submitted for the baseline period, in miles.

(q) "Average number of service connections" means the average of the values of the total number of customer service connections supplied by the urban retail water supplier reported as "number of active and inactive service connections" in the annual audits submitted for the baseline period.

(r) "Average operating pressure" means the average of the values of the pressure in the distribution system owned or operated by the urban retail water supplier reported as "average operating pressure" in the annual audits submitted for the baseline period, in pounds per square inch.

(s) "Average unit cost of leak detection surveying" is the average total cost incurred by the urban retail water supplier to conduct active leak detection, including equipment and labor costs and additional administrative costs associated with active leak detection, per unit mile of pipeline owned or operated by the urban retail water supplier, in dollars per mile surveyed. Unless a supplier uses its own values as indicated in this article, the default value shall be 595 dollars per mile surveyed.

(t) "Average unit leak repair costs for mains" means the average total cost incurred by the urban retail water supplier to repair each occurring leak on mains, including equipment and labor costs and additional administrative costs associated with repair, in dollars per leak. Unless a supplier uses its own values as indicated in this article, the default value shall be 5,946 dollars per leak.

(u) "Average unit leak repair costs for laterals and service lines" means the average total cost incurred by the urban retail water supplier to repair each occurring leak on laterals and service leaks, including equipment and labor costs and additional administrative costs associated with repair, in dollars per leak. Unless a supplier uses its own values as indicated in this article, the default value shall be 2,330 dollars per leak.

(v) "Average variable production cost" means the average of the values of the cost to produce and supply the next unit of water for the urban retail water supplier reported as "variable production cost" in the annual audits submitted for the baseline period, in dollars per acre-foot.

(w) Baseline period" means a four-year period of data to be used in the water loss model as inputs, and generally refers to the years for which data are reported in the annual audits submitted for the fiscal or calendar years 2017, 2018, 2019, and 2020, except as otherwise specified in this article.

(x) "Board" means the State Water Resources Control Board.

(y) "Compliance Period" means the three-year period preceding the date that compliance with the water loss standard is assessed. The first compliance period consists of the years 2025, 2026, and 2027.

(z) "Department" means the Department of Water Resources.

(aa) "Detected" means leaks found on the water distribution system owned or operated by an urban retail water supplier using active leak detection.

(bb) "Efficiency of leak detection equipment" is the average ratio of occurring leaks discovered by the urban retail water supplier on excavation solely due to active leak

detection to the total number of leaks detected by active leak detection, in percent. Unless a supplier uses its own values as indicated in this article, the default value shall be 70 percent.

(cc) "Executive Director" means the board's executive director.

(dd) "Exported water" means the volume of water sold to another agency as reported by the urban retail water supplier in the annual audit as "water exported."

(ee) "Full cycle of leak detection" means completing a survey of all mains in a distribution system. Other technologies can also be considered a "full cycle of leak detection" if they provide leakage data on the full distribution system.

(ff) "Imported water" means the volume of water purchased from another agency as reported by the urban retail water supplier in the annual audit as "water imported."

(gg) "Infrastructure condition factor" (ICF) means the ratio between the actual volume of background leakage in a zone or district metered area and the calculated unavoidable background leakage volume of a well-maintained system. Several methods can be used to quantify the ICF. The more accurate methods require a greater data collection effort. Unless a supplier uses its own values as indicated in this article, the default value shall be 1.

(hh) "Laterals and service lines" means the pipelines in the water distribution system owned or operated by the urban retail water supplier that convey water from mains to service connections.

(ii) "Leak" means failure of pipeline or other parts of water distribution infrastructure that leads to real loss from the water distribution system owned or operated by the urban retail water supplier.

(jj) "Mains" means pipelines in the water distribution system owned or operated by the urban retail water supplier that conveys water from the point of input to the distribution system to smaller lateral pipelines that distribute water throughout the urban retail water supplier's service area.

(kk) "Marginal avoided cost of water" means the value of per unit volume of water saved due to reduced real loss, including the current variable production cost of water and anticipated costs for providing safe, accessible water, in dollars per acre-foot. Unless a supplier uses its own values as indicated in this article, the default value shall be 1,275 dollars per acre-foot.

(ll) "Median household income determination" means the calculation conducted by the Board to determine the median household income for each urban retail water supplier service area based on the median household income data for counties of California and census tract data.

(mm) "Metered" means when the water furnished or delivered through a part of the water distribution system is measured through a water meter. "Water meter" has the same meaning as in Water Code Section 516.

(nn) "Month of implementation" means the month after the end of 2021 to implement water loss control, and ranges from 1 to 360. January of 2022 is the first month of implementation.

(oo) "Number of reported leaks on laterals and service lines" means the number of leaks that are found without active leak detection and are reported to the urban retail water supplier by the general public or the supplier's own personnel or contractors on its

lateral or service lines, in leaks per thousand average number of service connections per year. Unless a supplier uses its own values as indicated in this article, the default value shall be 2.3 leaks per thousand service connections per year.

(pp) "Number of reported leaks on mains" means the number of leaks that are found without active leak detection and are reported to the urban retail water supplier by the general public or the supplier's own personnel or contractors on its mains, in leaks per mile of average length of mains per year. Unless a supplier uses its own values as indicated in this article, the default value shall be 0.2 leaks per mile of mains per year.

(qq) "Number of unreported leaks on mains" means the number of leaks that are found through active leak detection on its mains, in leaks per mile of average length of mains per year. Unless a supplier uses its own values as indicated in this article, the default value shall be 0.01 leaks per 100 miles of mains per year.

(rr) "Number of unreported leaks on laterals and service lines" means the number of leaks that are found through active leak detection on its lateral or service lines, in leaks per thousand average number of service connections per year. Unless a supplier uses its own values as indicated in this article, the default value shall be 0.75 leaks per thousand service connections per year.

(ss) "Owned or operated" refers to components of the water distribution system that the urban retail water supplier owns or uses, or both, to distribute water to its service area.

(tt) "Rate of rise of leakage" means the rate at which real loss rises over time in the distribution system owned or operated by the urban retail water supplier, in gallons per service connection per day per year. This is equivalent to the volume of leakage that rises per unit time between two leak detection surveys, after repairing all detected leaks through the preceding active leak detection and repair effort in portions of the distribution system. Unless a supplier uses its own values as indicated in this article, the default value shall be 5 gallons per connection per day.

(uu) "Real loss" means the volume of annual leakage due to physical leakage, not including apparent losses, reported in the annual audit as "current annual real loss." Real loss has three components: reported, unreported, and background leakage. When real loss in this article is expressed in gallons per connection per day, it can be converted to gallons per mile per day such that one gallon per connection per day equals 74 gallons per mile per day.

(vv) "Repair" means an action taken and/or paid for to stop real loss.

(ww) "Reported leaks" means leaks discovered in the water distribution system without the aid of active leak detection and that are reported to the urban retail water supplier by the general public or the supplier's personnel, staff, or contractors.

(xx) "Service area" means the geographical area in which an urban retail water supplier supplies water and has distribution system infrastructure and/or service connections.

(yy) "Service connection" has the same meaning as in Health and Safety Code section 116275.

(zz) "System" has the same meaning as Public Water System in Health and Safety Code section 116275.

(aaa) "Unavoidable background leakage" (UBL) means the minimum volume out of the average baseline real loss that is not detected by active leak detection in a distribution system.

(bbb) "Unbilled metered water" means the volume of water supplied by the urban retail water supplier that is not billed but metered as reported by the urban retail water supplier in the annual audit as "unbilled metered consumption."

(ccc) "Unreported leakage for 2027" means the sum of the twelve months of Monthly unreported real loss with intervention, as calculated pursuant to section 982, subdivision (a)(10), as follows:

(1) For urban retail water suppliers reporting by calendar year, the sum of the twelve months of Monthly unreported real loss with intervention for the months of January through December of 2027.

(2) For urban retail water suppliers reporting by fiscal year, the sum of the twelve months of Monthly unreported real loss with intervention summed for the months of July 2026 through June 2027.

(ddd) "Urban retail water supplier" or "supplier" has the same meaning as in Water Code section 10608.12, subdivision (t) as further clarified hereafter:

(1) If the supplier owns and operates at least one public water system that has provided an average annual total of 3,000 AF of water or more for municipal purposes for the previous two years, or has served an annual average of 3,000 or more municipal service connections (i.e., residential (single or multifamily), commercial, institutional, industrial, or landscape irrigation) for the previous two years.

(2) Multiple public water systems that are owned and operated by the same supplier are, together, considered an urban retail water supplier, provided they:

(A) Individually serve 200 connections or more;

(B) Collectively, meet the criteria in paragraph (1); and

(C) Meet one or more of the criteria below:

(i) The systems are permanently interconnected;

(ii) The service area boundaries are adjacent;

(iii) The supplier is using the system's data, such as population or landscape area, to calculate its urban water use objective pursuant to Water Code section 10609.20.

(eee) "Water from own sources" means the volume of water withdrawn from water resources controlled by the urban retail water supplier as reported by the urban retail water supplier in the annual audit as "volume from own sources."

§ 981. Volumetric Water Loss Performance Standards.

(a) No later than January 1, 2028, each urban retail water supplier shall reduce real loss from its distribution systems to no greater than the real water loss standard identified in section 982, as reflected in the supplier's reported real loss in its annual audit submitted for 2027.

(b) If the urban retail water supplier's real loss reported in its 2027 annual audit exceeds the supplier's real water loss standard calculated in accordance with section 982, the supplier will be in compliance with subdivision (a) of this section if the supplier has achieved its real water loss standard as reflected in the real loss levels reported in its annual audit submitted for either 2025 or 2026.

(c) After 2028, each urban retail water supplier's compliance with its real water loss standard shall be assessed in every third year based on an average of the real losses reported in its three most recent annual audits. A supplier shall maintain, for each compliance assessment, real loss that is no greater than 5 gallons per connection per day above the supplier's real water loss standard.

(d) At the time compliance with real water loss standards is assessed, apparent losses will also be evaluated. Each supplier's apparent loss standard is the average of the supplier's baseline apparent losses plus an allowed variation of 2 gallons per connection per day. If the average apparent losses for any compliance period are greater than this standard, the supplier must submit an inventory of apparent losses.

(1) The apparent losses inventory shall include any calculations and data used to determine apparent losses for the water loss audits spanning the compliance period for which the standards have been evaluated. Each inventory item shall include the type of apparent loss (for example, metering inaccuracies, data handling errors, theft), the estimated volume of loss, and how each value was determined (for example, direct measurement, calculation based on specific equation(s), visual estimate).

(2) The apparent losses inventory must be submitted on a spreadsheet readable by the Board within 6 months of the supplier being informed by the Board that the supplier has exceeded its apparent loss standard. The Board will make a template available on its website.

(e) An urban retail water supplier's real water loss standard may be adjusted to include changes to the default parameter inputs identified in section 982(c), pursuant to section 984.

(f) An urban retail water supplier may calculate the average baseline real loss using three out of the four years of the baseline period by removing an outlier value that varies by over 10 gallons per service connection per day from the each of the adjacent values for the other three years or that is negative. If one year of real loss is removed from a supplier's calculated baseline real loss, that same year must be removed from the baseline average length of mains, average service connections, average operating pressure, average variable production cost, and average apparent loss calculations.

(g) In accordance with section 985, an urban retail water supplier may seek approval of a variance to its real water loss standard in response to unexpected adverse conditions and to its apparent water loss standard if apparent loss data quality improves.

(h) An urban retail water supplier whose service area meets the following criteria shall achieve compliance with this section no later than January 1, 2031:

(1) The service area has a disadvantaged communities (DAC) or severely disadvantaged communities (SDAC) designation owing to the median household income of the supplier's service area being less than or equal to 80 percent of the median household income of California per the median household income determination conducted by the board;

(2) The service area has a calculated benefit to cost ratio until 2028, pursuant to section 982, subdivision (a)(24), of less than 2; and

(3) The urban retail water supplier's real water loss standard calculated pursuant to section 982, subdivision (b) is lower than the supplier's average baseline real loss by 25% or more.

(i) Suppliers that do not meet their real loss standard by January 1, 2028, will be considered in compliance for the first compliance period if:

(1) The supplier's real water loss standard is lower than the supplier's average baseline real loss by 30% or more;

(2) The supplier's 2025, 2026, or 2027 water loss audits show progress as a reduction of real loss by at least 30% of the difference between the average baseline real loss and the real water loss standard;

(3) The supplier's data validity scores are at Level 3 or the supplier has demonstrated improving data validity scores. When determining eligibility, consideration will be given to data validity score reductions related to water audits prepared using different versions of the water auditing software;

(4) The supplier has completed one full cycle of leak detection surveys; and

(5) The supplier has submitted a written request for this compliance pathway to the Board and received approval prior to January 1, 2028. The request shall include:

(A) Why the supplier was unable to meet its real water loss standard;

(B) A list of leakage prevention activities the supplier has engaged in to prevent water loss;

(C) How the supplier is being a good steward with respect to other pieces of Water Code, division 6, part 2.55, chapter 9; and

(D) A plan for how it will meet its real water loss standard no later than January 1, 2031.

(j) For systems that do not meet the criteria to be considered an urban retail water supplier in section 980(ccc) until after the effective date of this section, this section applies beginning five (5) years after the system meets the criteria to be considered a supplier, except that the supplier must submit annual water loss audits starting with data for the first full year (calendar year or fiscal year, depending on how the supplier chooses to report its audits) it meets the criteria to be considered a supplier.

(1) The baseline period for suppliers subject to this subdivision consists of the first four years of submitted data.

(2) For suppliers subject to this subdivision, compliance with their real water loss standards will be assessed pursuant to subdivision (c) at the end of the first full compliance period after the standard is assigned except that if there is less than one full year between the standard being assigned and the start of the first full assessment period, compliance will be assessed at the end of the next full compliance period.

§ 982. Economic Model.

(a) Except as provided in subdivision (d), each urban retail water supplier's real water loss standard shall be based on the formula identified in subdivision (b), with the following inputs based on each supplier's own data or the default value:

(1) Annual background leakage:

Annual background leakage shall be calculated as follows:

$$\left(\begin{array}{c} 0.2\left[\frac{thousand\ gallons}{mile \cdot day}\right] \times \text{Length of mains } [miles] \\ +0.008\left[\frac{thousand\ gallons}{service\ connection \cdot day}\right] \times Number\ of\ service\ connections \end{array}\right)$$
$$\times \left(\frac{\text{Average operating pressure } [psi]}{70[psi]}\right)^{1.5} \times \text{Infrastructure Condition Factor}$$
$$\times \left[\frac{1{,}000\ gallons}{thousand\ gallons}\right] \times \left[\frac{1\ acre-foot}{325{,}851\ gallons}\right] \times \left[\frac{365\ days}{year}\right]$$

(2) Annual reported leakage:

Annual reported leakage shall be calculated as follows:

$$50\left[\frac{gallons}{leak \cdot minute}\right] \times \left[\frac{1\ acre-foot}{325{,}851\ gallons}\right] \times 0.2\left[\frac{leaks}{mile}\right]$$
$$\times \text{Length of mains}[miles] \times \left[\frac{60\ minutes}{hour}\right] \times \left[\frac{24\ hours}{day}\right] \times 3\left[\frac{days}{year}\right]$$
$$+7\left[\frac{gallons}{leak \cdot minute}\right] \times \left[\frac{1\ acre-foot}{325{,}851\ gallons}\right]$$
$$\times 0.75\left[\frac{leaks}{thousand\ service\ connections}\right] \times \left[\frac{thousand\ service\ connections}{1{,}000\ service\ connections}\right]$$
$$\times \text{Number of service connections} \times \left[\frac{60\ minutes}{hour}\right] \times \left[\frac{24\ hours}{day}\right] \times 8\left[\frac{days}{year}\right]$$

(3) Annual unreported leakage:

Annual unreported leakage shall be calculated by deducting annual background leakage and annual reported leakage from average baseline real loss.

(4) Months taken to survey whole system:

Months taken to survey whole system shall be calculated by dividing average length of mains by average leak detection survey frequency.

(5) Part of system:

Each part represents the amount of the system that can be surveyed each month, such that the number of parts in a system is equal to the number of months needed to survey the whole system.

(6) Unreported leakage per part of system:

Unreported leakage per part of system shall be calculated by dividing annual unreported leakage by months taken to survey whole system.

(7) Rate of rise of leakage per part of system:

Rate of rise of leakage per part of system shall be calculated by dividing rate of rise of leakage by months taken to survey whole system.

(8) Monthly water lost due to backlog of unreported leakage:

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Monthly water lost due to backlog of unreported leakage shall be calculated as follows:

$$(\text{Months taken to survey whole system} - \text{month of implementation} + 1) \times \text{Unreported leakage per part of system} \times \left(\frac{1\ year}{12\ months}\right)$$

(9) Monthly water lost from rising leakage in never surveyed parts of the system:

Monthly water lost from rising leakage prior to first leak survey shall be calculated as follows:

$$(Months\ taken\ to\ survey\ system - Month\ of\ Implementation + 1)[months] \times Average\ annual\ rise\ in\ leakage\left[\frac{acre-feet}{year^2 \times part}\right] \times (12\ months\ since\ the\ end\ of\ 2020 + Month\ of\ implementation - 0.5)[months] \times \left(\frac{1\ year}{12\ months}\right)^2$$

(10) Monthly water lost from rising leakage in previously surveyed parts of the system:

(A) Before one full leak detection survey has been completed, the monthly water lost from rising leakage in previously surveyed parts of the system shall be calculated as follows:

$$\text{Rate of rise in leakage}\left[\frac{acre-feet/year^2}{month}\right] \times \left(\frac{1\ year}{12\ months}\right)^2 \times \frac{(\text{month of implementation} - 1)^2}{2}$$

(B) After the entire system has been surveyed once, the monthly water lost from rising leakage in previously surveyed parts of the system shall be calculated as follows:

$$\text{Rate of rise in leakage}\left[\frac{acre-feet/year^2}{month}\right] \times \left(\frac{1\ year}{12\ months}\right)^2 \times \frac{\text{months taken to survey whole system}^2}{2}$$

(11) Monthly unreported real loss with intervention:

Monthly unreported real loss with intervention shall be the sum of monthly water lost due to backlog of unreported leakage, monthly water lost from rising leakage in never surveyed parts of the system, and monthly water lost from rising leakage in previously surveyed parts of the system.

(12) Monthly unreported real loss without intervention:

Monthly unreported real loss without intervention shall be calculated as follows:

$$Annual\ Unreported\ Leakage\left[\frac{acre-feet}{year}\right] \times \left(\frac{1\ year}{12\ months}\right) + \left(Rate\ of\ rise\ in\ leakage\left[\frac{acre-feet}{year^2}\right] \times \left(\frac{1\ year}{12\ months}\right)^2 \times 12\ months\ since\ the\ end\ of\ 2020\right)$$

(13) Water saved in month of implementation:

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Water saved in month of implementation shall be calculated by deducting monthly unreported real loss with intervention from monthly unreported real loss without intervention.

(14) Marginal avoided cost of water:

(A) At the beginning of 2022, the marginal avoided cost of water shall be calculated as follows:

$$\text{Avoided cost of alternative supplies} \times \left(1 + \text{Rise in price of water}\left[\frac{{}^{acre-feet}/_{year^2}}{month}\right] \times \left(\frac{1\ year}{12\ months}\right)^2 \times 24\ \text{months from 2020}\right)$$

(B) After 2022 begins, the marginal avoided cost of water shall be calculated as follows:

$$\text{Avoided cost of alternative supplies} \times \left(1 + \text{Rise in price of water}\left[\frac{{}^{acre-feet}/_{year^2}}{month}\right] \times \left(\frac{1\ year}{12\ months}\right) \times (\text{month of implementation} - 1)\right)$$

(15) Value of water loss reduced in each month:

Value of water loss reduced in each month shall be calculated as follows:

$$(\text{water loss occuring without intervention} - \text{water loss occuring with intervention}) \times \text{Marginal cost of water in each time step}$$

(16) Present value of water loss reduced each month:

Present value of water loss reduced each month shall be calculated as follows:

$$\frac{\text{Future value of water reduced}}{\left(1 + \text{discount rate} \times \frac{1\ year}{12\ months}\right)^{\text{month of implementation}}}$$

(17) Cost of leak detection during each month:

Cost of leak detection during each month shall be the product of average leak detection survey frequency in miles surveyed each month and average cost of leak detection surveying per mile.

(18) Initial leakage level for part surveyed each month:

(A) Before one full leak detection survey has been completed, then unreported leakage per month shall be calculated as follows:

$$\text{Unreported leakage per part of system}\left[\frac{acre-feet}{year}\right] + \text{month of implementation} \times \left(\frac{1\ year}{12\ months}\right) \times \text{Rate of rise in leakage}\left[\frac{{}^{acre-feet}/_{year^2}}{month}\right]$$

(B) After the entire system has been surveyed once, unreported leakage per month shall be calculated as follows:

$$\text{Rate of rise in leakage}\left[\frac{{}^{acre-feet}/_{year^2}}{month}\right] \times \left(\frac{1\ year}{12\ months}\right) \times \text{Months taken to survey whole system}$$

(19) Average volume per leak per year:

Average volume per leak per year shall be calculated as follows:

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$$\left(\frac{Volume\ leakage\ from\ mains\ [acre-feet/leak/year] \times Total\ Unreported\ leaks\ on\ mains\ \left[\frac{\#\ leaks}{year}\right]}{\left(Total\ unreported\ leaks\ on\ mains\ \left[\frac{\#\ leaks}{year}\right]\ +\ Total\ Unreported\ leaks\ on\ service\ connections\ \left[\frac{\#\ leaks}{year}\right]\right)}\right)$$
$$+\left(\frac{Volume\ of\ leakage\ from\ service\ connections\ [acre-feet/leak/year]\ \times\ Total\ Unreported\ Leaks\ on\ service\ connections\ \left[\frac{\#\ leaks}{year}\right]}{\left(Total\ Unreported\ Leaks\ on\ main\ \left[\frac{\#\ leaks}{year}\right]\ +\ Total\ Unreported\ Leaks\ on\ service\ connections\ \left[\frac{\#\ leaks}{year}\right]\right)}\right)$$

(20) Volume of leakage from mains:

Volume of leakage from mains per leak per year shall be calculated as follows:

$$Estimated\ average\ flow\ rate\ for\ unreported\ leaks\ on\ mains\ \left[\frac{gallons}{minute}\right]$$
$$\times\left(\frac{60\ minutes}{1\ hour}\right)\times\left(\frac{24\ hours}{1\ day}\right)\times\left(\frac{365\ days}{1\ year}\right)\times\left(\frac{1\ acre-foot}{325{,}851\ gallons}\right)$$

(21) Volume of leakage from service connections:

Volume of leakage from service connections per leak per year shall be calculated as follows:

$$Estimated\ average\ flow\ rate\ for\ unreported\ leaks\ on\ service\ connections\ \left[\frac{gallons}{minute}\right]$$
$$\times\left(\frac{60\ minutes}{1\ hour}\right)\times\left(\frac{24\ hours}{1\ day}\right)\times\left(\frac{365\ days}{1\ year}\right)\times\left(\frac{1\ acre-foot}{325{,}851\ gallons}\right)$$

(22) Leaks found per part of the system:

Leaks found per part of the system is calculated for each month as follows:

$$\left(\frac{(Initial\ Leakage\ Level\ for\ part\ surveyed\ each\ month\ [acre-feet/year])}{Average\ Volume\ per\ Leak\ \left[\frac{acre-feet/year}{leak}\right]}\right)$$

(23) Cost of leak repair during each month:

Cost of leak repair during each month shall be calculated as follows:

$$Leaks\ found\ per\ part\ of\ system\ with\ intervention\ [\#leaks]\div Efficiency\ of\ Leak\ Detection\ Equipment\ [percent]$$
$$\times\left(\left(\frac{Total\ Unreported\ Leakage\ on\ mains\ \left[\frac{\#\ leaks}{year}\right]}{\left(Total\ Unreported\ leaks\ on\ mains\ \left[\frac{\#\ leaks}{year}\right]+Total\ Unreported\ leaks\ on\ service\ connections\ \left[\frac{\#\ leaks}{year}\right]\right)}\times Repair\ costs\ for\ leaks\ on\ mains\left[\frac{\$}{leak\ repaired}\right]\right)\right.$$
$$\left.+\left(\frac{Total\ Unreported\ Leakage\ on\ service\ connections\ \left[\frac{\#\ leaks}{year}\right]}{\left(Total\ Unreported\ leaks\ on\ mains\ \left[\frac{\#\ leaks}{year}\right]+Total\ Unreported\ leaks\ on\ service\ connections\ \left[\frac{\#\ leaks}{year}\right]\right)}\times Repair\ costs\ for\ leaks\ on\ service\ connections\left[\frac{\$}{leak\ repaired}\right]\right)\right)$$

(24) Total leak detection and repair cost for each month:

Total leak detection and repair cost for each month shall be the sum of cost of leak detection during each month plus cost of leak repair during each month.

(25) Present value of cost for each month:

Present value of cost for each month shall be calculated as follows:

$$\frac{\text{Future cost of leak detection and repair}}{\left(1+\text{discount rate}\times\frac{1}{12}years\right)^{\text{month of implementation}}}$$

(26) Present value of net benefit in month of implementation:

Present value of net benefit in month of implementation shall be calculated by deducting present value of cost for each month from present value of benefit for each month.

(27) Present value of net benefit over 30 years:

Present value of net benefit over 30 years is the sum of present value of net benefit in month of implementation summed from January 1, 2022, through December 31, 2051.

(28) Benefit to cost ratio until 2028:

The Benefit to cost ratio until 2028 is the sum of present value of benefit for each month from January 2022 through December 2027 divided by the sum of the present value of cost for each month from January 2022 through December 2027.

(b) Each urban retail water supplier's real water loss standard shall be as follows:

(1) If the present value of net benefit over 30 years is negative, the real water loss standard is equal to the average baseline real loss.

(2) If the present value of net benefit over 30 years is zero or positive, the real water loss standard is equal to the sum of annual background leakage plus annual reported leakage plus unreported leakage for 2027.

(c) For purposes of subdivision (a) of this section, each input value, except real discount rate, average annual rise in price of water, and effective timeline for lifecycle benefit-cost analysis, shall be either the default value identified in section 980, or the supplier's own value if adequately supported by documentation submitted to the board. Average annual rise in price of water shall be either the default value identified in section 980 or the supplier's own value if the requirements in section 984 subdivision (b) are met. If the board concludes that any specific value used by a supplier is not adequately supported by documentation, the board shall promptly communicate that deficiency to the supplier with a timeline within which to cure the deficiency.

(d) (1) Suppliers may apply for a real water loss standard of 16 gallons per connection per day if the supplier has an average baseline real loss of 16 gallons per connection per day or less and the supplier also meets the following criteria for its annual audits:

(A) The supplier does not show a year-to-year variability higher than 10 gallons per connection per day for real loss on any annual audit for the years used to calculate the average real loss pursuant to paragraph (3) of this subdivision.

(B) For a supplier that has reported a negative value for its real loss for any of the years used to calculate the average real loss pursuant to paragraph (3) of this subdivision, it has identified the cause for the negative value and documented the steps taken to correct it.

(C) The supplier's water from own sources, imported water, and exported water are completely metered.

(D) If the supplier's water from own sources is greater than 5% of the total water supplied, the supplier demonstrates that meters measuring at least 95% of the total produced volume are tested on at least an annual basis.

(E) If the supplier's imported water volume is greater than 5% of the total water supplied, the supplier demonstrates that meters measuring at least 95% of the total imported volume are calibrated on at least an annual basis.

(F) If the supplier's exported water volume is greater than 5% of the total water supplied, the supplier demonstrates that meters measuring at least 95% of the total exported volume are tested on at least an annual basis.

(G) All customer accounts, excluding those providing fire-flow, are metered, with at least 90% success rates in meter reading.

(H) A statistically significant sample of customer meters, as determined by the supplier, or 300 meters, whichever is lower, are tested annually.

(I) If the unbilled metered water volume is higher than 1% of the total water supplied, the supplier reads the meters for accounts that are supplied through unbilled metered water accounts at the same or greater frequency as the supplier reads the meters for the majority of customers.

(2) If a supplier that meets the criteria of this subdivision, except that it is unable to meet the criteria for paragraphs (D), (E), or (F) of subdivision (d)(1) due to aspects outside of its control, such as not having access to calibrate water meters owned by other entities or not being able to move large meters, then it may petition to be exempted from criteria involving only those aspects outside of their control. This petition may be granted at the discretion of the Board and may include provisions, such as a requirement to calibrate rather than test a meter or to request in writing that water meters be tested and/or calibrated by the entities that own them.

(3) For the purposes of this subdivision, average real loss shall be calculated using the following years of data:

(A) The original baseline period, which consists of data for the years 2017, 2018, 2019, and 2020, provided the submission is received by July 1, 2023; or

(B) Data for any three consecutive years, provided those years are within five years of the submission date.

(4) This subdivision shall only apply to urban retail water suppliers that submit supporting documentation to demonstrate that their average baseline real loss is 16 gallons per connection per day or less and that they have met the data quality criteria of this subdivision. Submissions on or before July 1, 2023, will take effect immediately. Submissions received after July 1, 2023, will take effect in the next compliance period, exempting suppliers from the reporting requirements in section 983 for subsequent compliance periods.

§ 983. Questionnaires and Reporting Requirements.

(a) Each urban retail water supplier, except those meeting the criteria in section 982, subdivision (d), shall submit responses to specific questions developed by the board on metering practices and data handling that influence data quality for water loss audits by July 1, 2023. Questions shall solicit information on the following:

(1) The proportion of source/production water withdrawals that is metered

(2) The program for regular flow testing of its production and source meters for accuracy

(3) Frequency with which source meters are tested

(4) The program for regular electronic calibration of secondary instrumentation that supports source or production meters, including the frequency of calibration

(5) The proportion of authorized consumption that is measured by customer meters

(6) The program for regular flow testing of customer meters for accuracy

(7) Frequency with which customer meters are flow tested to determine accuracy

(8) Types of data handling and billing errors identified in the prior year

(b) Each urban retail water supplier, except those meeting the criteria in section 982, subdivision (d), shall submit responses to specific questions developed by the board on pressure management practices and associated estimated real loss reduction that influence data quality for water loss audits by July 1, 2023, and updated responses by July 1, 2026. Questions shall solicit information on the following:

(1) Devices used to control pressure transients in the water distribution system

(2) Inspection, maintenance and repair of devices installed for controlling pressure transients in the distribution system

(3) Inspection, maintenance and repair of pressure reducing/modulating valves in the distribution system

(4) Frequency with which each device for controlling pressure transients is inspected

(5) Portions of the system that have high operating pressure

(6) Potential for reducing or modulating pressure to reduce leakage

(7) For update response due by July 1, 2026, approach to reduce leakage in high leakage zones

(8) For update response due by July 1, 2026, whether pressure management can be implemented while meeting water quality and fire flow requirements for the distribution system

(9) Estimated feasible water loss reduction as a result of pressure management, projected to 2035.

(c) Each urban retail water supplier, except those meeting the criteria in section 982, subdivision (d), shall submit responses to specific questions developed by the board on asset management practices and associated estimated real loss reduction that influence data quality for water loss audits by July 1, 2024, and updated responses by July 1, 2027. Questions shall solicit information on the following:

(1) Maintenance of records regarding distribution infrastructure failures

(2) Data fields included in infrastructure failure records

(3) Approach to identifying and prioritizing replacement, rehabilitation, or protection of water distribution infrastructure components that break or leak, including system and environmental factors

(4) Any other supplier cost related to asset management or information that may suggest water loss control past the point of long term cost-effectiveness.

(5) For update response due by July 1, 2027, total projected length of water distribution pipe in miles replaced in each year between 2027 and 2035

(6) For update response due by July 1, 2027, the actual length of water distribution pipe in miles replaced on an average basis annually between 2024 and 2027

(7) For update response due by July 1, 2027, projections regarding distribution infrastructure components that will be replaced, rehabilitated, or provided enhanced protection through 2035

(8) For update response due by July 1, 2027, estimated feasible water loss reduction, projected to 2035

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(d) Each urban retail water supplier, except those meeting the criteria in section 982, subdivision (d), shall submit a registry of breaks, repairs, and estimated water losses to the Board every three years.

(1) The registry shall contain the latest three years of data, beginning with data for 2025, 2026, and 2027 due by January 1, 2029.

(2) The registry shall be submitted on a spreadsheet readable by the Board that contains at a minimum the following data: break identifier (for example, name, number, cross street), date and time the break was found, date and time the break was repaired, estimated duration of the break, and estimated water volume lost through the break. The Board will make a template available on its website.

(3) The deadline for this submission is identical to the water audit submission deadline for the third year's audit, as described in Water Code section 10608.34, subdivision (b).

§ 984. Adjustments.

(a) An urban retail water supplier may submit to the Board a request for a parameter adjustment to its real water loss standard based on system-specific conditions affecting operations and system conditions.

(b) A request for a parameter adjustment must include a description of specific parameter input(s) or data that would be adjusted, documentation supporting the request, and an assessment of changes from the adjustment of input(s).

(1) A supplier may request to use a different rise in price of water if the supplier demonstrates that the alternative value:

(A) Is not less than the real discount rate, 3.5 percent; and

(B) Has been developed and certified by a licensed engineer.

(c) Parameter adjustment requests submitted after July 1, 2023, will not be accepted unless accompanied by a satisfactory explanation for the supplier's inability to submit that request prior to that date. Satisfactory explanations include that the supplier, with reasonable diligence, did not yet have access to measured data necessary for parameter calculations or that the supplier is replacing obsolete data with more recent, higher-quality data.

(d) Suppliers that have completed a hydraulic consolidation shall report to the Board within one year and submit the following information:

(1) The names and identification numbers of all involved systems;

(2) The date of consolidation;

(3) Map(s) showing service areas of all involved systems.

(e) If a supplier hydraulically consolidates another system within its service area, the supplier will have a period of 5 years before being given new water loss standards.

(1) The supplier must continue to submit annual water loss audits, incorporating the consolidated system into its own audit no more than one year after consolidation.

(2) In the time period after the consolidation occurs but before the new water loss standards are given, the supplier will have no water loss standards and will not be evaluated for compliance with a water loss standard.

(3) For each year the supplier has no real water loss standard, it must survey at least as frequently as the previous period and submit documentation of this requirement to the Board within 6 months of the end of each year.

(4) New real water loss standards will be assessed pursuant to section 981 subdivision (c) starting one full compliance period after the new real water loss standard is assigned.

(f) Any other adjustment requests may be submitted to the Board at any time and will be considered based on the merits of the proposed change.

(1) Suppliers that have model inputs that changed significantly from the baseline period may request an adjustment to their water loss standards by submitting a request that includes the following:

(A) Data for a new baseline period, which consists of 4 consecutive years of water audit data;

(B) An explanation for why the data in the new baseline period is more appropriate than the data in the previous baseline period. Satisfactory explanations include better data quality in the new baseline period and that more recent data can better represent a system that has changed.

(2) Staff can initiate an adjustment process for any system that has significant changes in data compared to the baseline if at least 3 compliance assessments have passed.

(g) The executive director, or executive director's designee, shall provide a written decision on a request to adjust an urban retail water supplier's real water loss standard made pursuant to subdivision (a) within 90 days of receiving the request and supporting documentation. This may be extended by the executive director or the executive director's designee upon a determination that the supporting documentation is insufficient.

§ 985. Variances.

(a) An urban retail water supplier may seek approval of a variance to its real water loss standard if needed to respond to unexpected adverse conditions out of the system's control or where a supplier's real water loss standard has been set according to section 982 (b)(1). Examples of adverse conditions out of the system's control include major damage to the system's distribution system or storage infrastructure, major unexpected changes in avoided water costs, and major changes in the system's financial situation (for example, bankruptcy or substantial loss of revenue). Drought shall not generally support a variance pursuant to this section.

(b) Any request for a variance for adverse conditions shall include a description and assessment of impacts from the identified adverse condition, a clearly identified need for the revision, a proposed schedule, or milestones, for return to the usual real water loss standard, and documentation supporting the request.

(c) Any request for a variance based on a real water loss standard being set according to section 982 (b)(1) shall include a description of water loss control activities during the baseline period, the costs of water loss control activities during the baseline period, and an evaluation of the monetary value of water saved by those water loss

control activities. To be approved, the request must demonstrate that the water loss control activities during the baseline period were not cost-effective long term.

(d) A variance for adverse conditions shall be in the form of an extension of the compliance period. Notwithstanding section 981(c), a supplier with an approved variance based on subdivision (c) of this section shall maintain, for each compliance assessment, real loss that is no greater than 10 gallons per connection per day above the supplier's average baseline real loss.

(e) An urban retail water supplier may seek approval of a variance to its apparent loss standard if increases from the average baseline apparent loss level are attributable to improvements in data validity. A variance may be approved after finding that for two consecutive years the supplier's validated annual audits show data entries have improved to a data grading value of 6 or higher for the following audit data entries:

(1) customer metering inaccuracies; or

(2) all entries under the heading "water supplied":

(A) volume from own sources;

(B) master meter and supply error adjustment;

(C) water imported (when more than 5% of total water supplied); and

(D) water exported (when more than 5% of total water supplied).

(f) The variance for apparent loss standards shall be in the form of an adjustment of the apparent loss standard identified in section 981(d).

(g) The executive director, or the executive director's designee, shall provide prompt decisions on requests for variances.

§ 986. Additional Conservation Tools.

(a)(1) When an urban retail water supplier does not meet its real water loss standard required by section 981, the executive director, or the executive director's designee, may issue conservation orders requiring additional actions by the supplier to come into compliance with its real water loss standard. Prior to issuance of a conservation order, the Board will provide the supplier an indication of their noncompliance and seek to resolve the noncompliance informally, including through alternative enforceable agreements with the supplier. Informal resolutions of noncompliance will be sought for all systems, and particularly for suppliers that have met the provisions of section 981 (h) or (i).

(2) A decision or order issued under this article by the board or an officer or employee of the board is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code.

(b) The executive director, or the executive director's designee, may issue an informational order requiring an urban retail water supplier to submit additional information relating to water loss. The failure to provide the information requested within 30 days or any additional time extension granted is a violation subject to civil liability of up to $500 per day for each day the violation continues pursuant to Water Code section 1846.

(c) Submitting any information pursuant to this article that the person who submits the information knows or should have known is materially false is a violation of this article and is punishable by civil liability of up to five hundred dollars ($500) for each day in

which the violation occurs. Every day that the error goes uncorrected constitutes a separate violation. Civil liability for the violation is in addition to and does not supersede or limit any other remedies, civil or criminal.

Article 2. Reporting

§ 990. Definitions.

As used in this Article:

(a) "Board" means the State Water Resources Control Board.

(b) "Commercial agricultural use" means "agricultural use" as defined in Government Code section 51201, subdivision (b), including irrigation of land, irrigation within green houses, frost protection, and heat control. "Commercial agricultural use" does not include cleaning, processing, or other similar post-harvest activities.

(c) "Non-revenue water" means the portion of water consumption that is not billed and does not produce revenue. It is equal to the sum of the urban water supplier's unbilled authorized consumption and apparent and real losses.

(d) "Commercial, industrial, and institutional" (CII) means all indoor and outdoor water used by all commercial water users, industrial water users, and institutional water users as respectively defined in Water Code, section 10608.12, subdivisions (e), (i), and (j). CII includes agricultural water and landscape water used for parks, medians, and other outdoor areas associated with CII.

(e) "Percent residential use" is calculated by dividing the amount of water provided to the residential sector for the reporting month (not including non-revenue water) by the total potable water production for the reporting month.

(f) "Total potable water production" means all potable water that enters into a water supplier's distribution system, excluding water placed into storage and not withdrawn for use during the reporting period and excluding water exported outsider the supplier's service area during the reporting period. Total Potable Water Production includes all non-revenue waters.

(g) "Urban water supplier" means a supplier that meets the definition set forth in Water Code section 10617, except it does not include suppliers when they are functioning solely in a wholesale capacity. "Urban water supplier" does include suppliers when they are functioning in a retail capacity.

(h) "Water shortage response action level" means one of six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage, as defined in Water Code section 10632, subdivision (a)(3)(A).

§ 991. Conservation and Use Reporting by Urban Water Suppliers.

(a) Each urban water supplier shall prepare and submit to the Board by the 28th of each month a monitoring report on forms provided by the Board. The monitoring report shall include the following information:

(1) The urban water supplier's public water system identification number(s).

(2) The urban water supplier's volume of total potable water production, including water provided by a wholesaler, in the preceding calendar month;

(3) The population served by the urban water supplier during the reporting period;
(4) The percent residential use that occurred during the reporting period;
(5) The water shortage response action level.

(b) When the governor declares a drought emergency, or when an urban water supplier invokes a water shortage level to respond to a shortage of greater than ten percent, consistent with Water Code section 10632; each urban water supplier shall prepare and submit to the Board by the 28th of each month an expanded monitoring report, on forms provided by the Board. The requirement to prepare and submit an expanded monitoring report shall remain in effect for the duration of the drought emergency or water shortage level, as applicable. The expanded monitoring report shall include the following information:

(1) Descriptive statistics on the urban water supplier's achievement of its water contingency plan response actions, including supply augmentation, if any, and progress toward achieving a reduction in water consumption associated with the urban water supplier's existing water shortage response action level;
(2) Communication actions;
(3) Compliance and enforcement actions.

(c) Each urban water supplier that provides potable water for commercial agricultural use may subtract the amount of water provided for commercial agricultural use from its potable water production total, provided that any urban water supplier that subtracts any water provided for commercial agricultural use from its total potable water production shall clearly identify what water use qualifies as commercial agricultural use.

(d) The Executive Director, or the Executive Director's designee, may issue an order to any urban water supplier that fails to submit the information required by this section, requiring the urban water supplier to provide the information by a specified date. Failure to provide the required information as identified in an order issued pursuant to this subdivision, or the submission of any information pursuant to an order issued pursuant to this subdivision that is found to be materially false by the Board, is a violation, punishable by civil liability of up to one thousand dollars ($1,000) for each day in which the violation occurs. Every day that the failure or error goes uncorrected constitutes a separate violation. Civil liability for the violation is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

(e) A decision or order issued under this section by the Board or an officer or employee of the Board is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code.

Article 3. Prevention of Drought Wasteful Water Uses

§ 995. Wasteful and Unreasonable Water Uses.

(a) As used in this section:
(1) "Turf" has the same meaning as in section 491.
(2) "Incidental runoff" means unintended amounts (volume) of runoff, such as unintended, minimal overspray from sprinklers that escapes the area of intended use. Water leaving an intended use area is not considered incidental if it is part of the facility

or system design, if it is due to excessive application, if it is due to intentional overflow or application, or if it is due to negligence.

(b)(1) To prevent the unreasonable use of water and to promote water conservation, the use of water is prohibited as identified in this subdivision for the following actions:

(A) The application of potable water to outdoor landscapes in a manner that causes more than incidental runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

(B) The use of a hose that dispenses water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;

(C) The use of potable water for washing sidewalks, driveways, buildings, structures, patios, parking lots, or other hard surfaced areas, except in cases where health and safety are at risk;

(D) The use of potable water for street cleaning or construction site preparation purposes, unless no other method can be used or as needed to protect the health and safety of the public;

(E) The use of potable water for decorative fountains or the filling or topping-off of decorative lakes or ponds, with exceptions for those decorative fountains, lakes, or ponds that use pumps to recirculate water and only require refilling to replace evaporative losses;

(F) The application of water to irrigate turf and ornamental landscapes during and within 48 hours after measurable rainfall of at least one fourth of one inch of rain. In determining whether measurable rainfall of at least fourth of one inch of rain occurred in a given area, enforcement may be based on records of the National Weather Service, the closest CIMIS station to the parcel, or any other reliable source of rainfall data available to the entity undertaking enforcement of this subdivision; and

(G) The use of potable water for irrigation of ornamental turf on public street medians.

(2) Notwithstanding subdivision (b)(1), the use of water is not prohibited by this section to the extent necessary to address an immediate health and safety need. This includes, but is not limited to, the use of potable water in a fountain or water feature when required to be potable because human contact is expected to occur.

(c)(1) To prevent the unreasonable use of water and to promote water conservation, any homeowners' association or community service organization or similar entity is prohibited from:

(A) Taking or threatening to take any action to enforce any provision of the governing documents or architectural or landscaping guidelines or policies of a common interest development where that provision is void or unenforceable under section 4735, subdivisions (a) and (b) of the Civil Code;

(B) Imposing or threatening to impose a fine, assessment, or other monetary penalty against any owner of a separate interest for reducing or eliminating the watering of vegetation or lawns during a declared drought emergency, as described in section 4735, subdivision (c) of the Civil Code; or

(C) Requiring an owner of a separate interest upon which water-efficient landscaping measures have been installed in response to a declared drought emergency, as described in section 4735, subdivisions (c) and (d) of the Civil Code, to reverse or

remove the water-efficient landscaping measures upon the conclusion of the state of emergency.

(2) As used in this subdivision:

(A) "Architectural or landscaping guidelines or policies" includes any formal or informal rules other than the governing documents of a common interest development.

(B) "Homeowners' association" means an "association" as defined in section 4080 of the Civil Code.

(C) "Common interest development" has the same meaning as in section 4100 of the Civil Code.

(D) "Community service organization or similar entity" has the same meaning as in section 4110 of the Civil Code.

(E) "Governing documents" has the same meaning as in section 4150 of the Civil Code.

(F) "Separate interest" has the same meaning as in section 4185 of the Civil Code.

(3) If a disciplinary proceeding or other proceeding to enforce a rule in violation of subdivision (c)(1) is initiated, each day the proceeding remains pending shall constitute a separate violation of this regulation.

(d) To prevent the unreasonable use of water and to promote water conservation, any city, county, or city and county is prohibited from imposing a fine under any local maintenance ordinance or other relevant ordinance as prohibited by section 8627.7 of the Government Code.

(e) The taking of any action prohibited in subdivision (b), (c) or (d) is an infraction punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

(f) A decision or order issued under this section by the Board or an officer or employee of the Board is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code.

§ 996. Urban Drought Response Actions.

(a) As used in this section:

(1) "Commercial, industrial and institutional" refers to commercial water users, industrial water users, and institutional water users as respectively defined in Water Code, section 10608.12, subdivisions (e), (i), and (j), and includes homeowners' associations, common interest developments, community service organizations, and other similar entities but does not include the residences of these entities' members or separate interests.

(2) "Common interest development" has the same meaning as in section 4100 of the Civil Code.

(3) "Community service organization or similar entity" has the same meaning as in section 4110 of the Civil Code.

(4) "Homeowners' association" means an "association" as defined in section 4080 of the Civil Code.

(5) "Non-functional turf" means turf that is solely ornamental and not regularly used for human recreational purposes or for civic or community events. Non-functional turf

does not include sports fields and turf that is regularly used for human recreational purposes or for civic or community events.

(6) "Plant factor" has the same meaning as in section 491.

(7) "Separate interest" has the same meaning as in section 4185 of the Civil Code.

(8) "Turf" has the same meaning as in section 491.

(b)(1) To prevent the unreasonable use of water and to promote water conservation, the use of potable water is prohibited for the irrigation of non-functional turf at commercial, industrial, and institutional sites.

(2) Notwithstanding subdivision (b)(1), the use of water is not prohibited by this section to the extent necessary to ensure the health of trees and other perennial non-turf plantings or to the extent necessary to address an immediate health and safety need.

(3) Notwithstanding subdivision (b)(1), an urban water supplier may approve a request for continued irrigation of non-functional turf where the user certifies that the turf is a low water use plant with a plant factor of 0.3 or less, and demonstrates the actual use is less than 40% of reference evapotranspiration.

(c) The taking of any action prohibited in subdivision (b) is an infraction punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

(d) A decision or order issued under this section by the Board, or an officer or employee of the Board, is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code.

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Addendum A: CA Ground Water Rule

This is a reference to text adopted pursuant to title 22, division 4, chapter 15, article 3.5, and section 64430 of the CCR.

The listed subparts in this addendum are taken from title 40, chapter I, subchapter D, part 141 in the Code of Federal Regulations (CFR).

Only pertinent parts of the CFR are provided.

CODE OF FEDERAL REGULATIONS

Subpart C—Monitoring and Analytical Requirements

§ 141.21 Coliform sampling.

(d)(3) Sanitary surveys conducted by the State under the provisions of § 142.16(o)(2) of this chapter may be used to meet the sanitary survey requirements of this section.

§ 141.28 Certified laboratories.

(a) For the purpose of determining compliance with § 141.21 through 141.27, 141.30, 141.40, 141.74, 141.89 and 141.402, samples may be considered only if they have been analyzed by a laboratory certified by the State except that measurements of alkalinity, calcium, conductivity, disinfectant residual, orthophosphate, pH, silica, temperature and turbidity may be performed by any person acceptable to the State.

Subpart O—Consumer Confidence Reports

§ 141.153 Content of the reports.

(h)(6) Systems required to comply with subpart S.

(i) Any ground water system that receives notice from the State of a significant deficiency or notice from a laboratory of a fecal indicator-positive ground water source sample that is not invalidated by the State under § 141.402(d) must inform its customers of any significant deficiency that is uncorrected at the time of the next report or of any fecal indicator-positive ground water source sample in the next report. The system must continue to inform the public annually until the State determines that particular significant deficiency is corrected or the fecal contamination in the ground water source is addressed under § 141.403(a). Each report must include the following elements.

(A) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known) and the date the significant deficiency was identified by the State or the dates of the fecal indicator-positive ground water source samples;

(B) If the fecal contamination in the ground water source has been addressed under § 141.403(a) and the date of such action;

(C) For each significant deficiency or fecal contamination in the ground water source that has not been addressed under § 141.403(a), the State-approved plan and schedule

for correction, including interim measures, progress to date, and any interim measures completed; and

(D) If the system receives notice of a fecal indicator-positive ground water source sample that is not invalidated by the State under § 141.402(d), the potential health effects using the health effects language of Appendix A of subpart O.

(ii) If directed by the State, a system with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction under paragraph (h)(6)(i) of this section.

APPENDIX A TO SUBPART O OF PART 141 — REGULATED CONTAMINANTS

[SHOWN IN PART]

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Microbiological contaminants:						
Fecal Indicators (enterococci or coliphage).	TT	.....	TT	N/A.....	Human and animal fecal waste	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely

						compromised immune systems.

TT = Treatment Technique

Subpart Q – Public Notification of Drinking Water Violations

§ 141.202. *Tier 1 Public Notice*—Form, manner, and frequency of notice.

(a) […]

TABLE 1 TO § 141.202—VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 1 PUBLIC NOTICE

[Shown in pertinent part]

(8) Detection of *E. coli*, enterococci, or coliphage in source water samples as specified in § 141.402(a) and § 141.402(b);

§ 141.203. *Tier 2 Public Notice*—Form, manner, and frequency of notice.

(a) […]

TABLE 1 TO § 141.203—VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 2 PUBLIC NOTICE

[Shown in pertinent part]

(4) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer under § 141.403(a).

[Appendices A and B to Subpart Q of Part 141 are listed below in Addendum B.]

Subpart S—Ground Water Rule

§ 141.400. General requirements and applicability.

(a) *Scope of this subpart.* The requirements of this subpart S constitute National Primary Drinking Water Regulations.

(b) *Applicability.* This subpart applies to all public water systems that use ground water except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment under subpart H. For the purposes of this subpart, "ground water system" is defined as any public water system meeting this applicability statement, including consecutive systems receiving finished ground water.

(c) *General requirements.* Systems subject to this subpart must comply with the following requirements:

(1) Sanitary survey information requirements for all ground water systems as described in § 141.401.

(2) Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least 99.99 percent (4-log) treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer as described in § 141.402.

(3) Treatment technique requirements, described in § 141.403, that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under § 141.402, or that have significant deficiencies that are identified by the State or that are identified by EPA under SDWA section 1445. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this subpart must implement one or more of the following corrective action options: correct all significant deficiencies; provide an alternate source of water; eliminate the source of contamination; or provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer.

(4) Ground water systems that provide at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in § 141.403(b).

(5) If requested by the State, ground water systems must provide the State with any existing information that will enable the State to perform a hydrogeologic sensitivity assessment. For the purposes of this subpart, "hydrogeologic sensitivity assessment" is a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

(d) *Compliance date.* Ground water systems must comply, unless otherwise noted, with the requirements of this subpart beginning December 1, 2009.

§ 141.401. Sanitary surveys for ground water systems.

(a) Ground water systems must provide the State, at the State's request, any existing information that will enable the State to conduct a sanitary survey.

(b) For the purposes of this subpart, a "sanitary survey," as conducted by the State, includes but is not limited to, an onsite review of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

(c) The sanitary survey must include an evaluation of the applicable components listed in paragraphs (c)(1) through (8) of this section:

(1) Source,

(2) Treatment,

(3) Distribution system,

(4) Finished water storage,

(5) Pumps, pump facilities, and controls,

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(6) Monitoring, reporting, and data verification,
(7) System management and operation, and
(8) Operator compliance with State requirements.

§ 141.402. Ground water source microbial monitoring and analytical methods.

(a) Triggered source water monitoring—

(1) *General requirements.* A ground water system must conduct triggered source water monitoring if the conditions identified in paragraphs (a)(1)(i) and (a)(1)(ii) of this section exist.

(i) The system does not provide at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for each ground water source; and

(ii) The system is notified that a sample collected under 22 California Code of Regulations sections 64422 and 64423 is total coliform-positive and the sample is not invalidated under 22 California Code of Regulations section 64425.

(2) *Sampling requirements.* A ground water system must collect, within 24 hours of notification of the total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under 22 California Code of Regulations sections 64422 and 64423, except as provided in paragraph (a)(2)(ii) of this section.

(i) The State may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the State must specify how much time the system has to collect the sample.

(ii) If approved by the State, systems with more than one ground water source may meet the requirements of this paragraph (a)(2) by sampling a representative ground water source or sources. If directed by the State, systems must submit for State approval a triggered source water monitoring plan that identifies one or more ground water sources that are representative of each monitoring site in the system's sample siting plan under 22 California Code of Regulations sections 64422 and 64423 and that the system intends to use for representative sampling under this paragraph.

(iii) A ground water system serving 1,000 people or fewer may use a repeat sample collected from a ground water source to meet both the requirements of 22 California Code of Regulations section 64424 and to satisfy the monitoring requirements of paragraph (a)(2) of this section for that ground water source only if the State approves the use of *E. coli* as a fecal indicator for source water monitoring under this paragraph (a). If the repeat sample collected from the ground water source is *E.coli* positive, the system must comply with paragraph (a)(3) of this section.

(3) *Additional requirements.* If the State does not require corrective action under § 141.403(a)(2) for a fecal indicator-positive source water sample collected under paragraph (a)(2) of this section that is not invalidated under paragraph (d) of this section, the system must collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

(4) Consecutive and wholesale systems —

(i) In addition to the other requirements of this paragraph (a), a consecutive ground water system that has a total coliform-positive sample collected under 22 California Code of Regulations sections 64422 and 64423 must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

(ii) In addition to the other requirements of this paragraph (a), a wholesale ground water system must comply with paragraphs (a)(4)(ii)(A) and (a)(4)(ii)(B) of this section.

(A) A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under 22 California Code of Regulations sections 64422 and 64423 is total coliform-positive must, within 24 hours of being notified, collect a sample from its ground water source(s) under paragraph (a)(2) of this section and analyze it for a fecal indicator under paragraph (c) of this section.

(B) If the sample collected under paragraph (a)(4)(ii)(A) of this section is fecal indicator-positive, the wholesale ground water system must notify all consecutive systems served by that ground water source of the fecal indicator source water positive within 24 hours of being notified of the ground water source sample monitoring result and must meet the requirements of paragraph (a)(3) of this section.

(5) *Exceptions to the triggered source water monitoring requirements.* A ground water system is not required to comply with the source water monitoring requirements of paragraph (a) of this section if either of the following conditions exists:

(i) The State determines, and documents in writing, that the total coliform-positive sample collected under 22 California Code of Regulations sections 64422 and 64423 is caused by a distribution system deficiency; or

(ii) The total coliform-positive sample collected under 22 California Code of Regulations sections 64422 and 64423 is collected at a location that meets State criteria for distribution system conditions that will cause total coliform-positive samples.

(b) *Assessment source water monitoring.* If directed by the State, ground water systems must conduct assessment source water monitoring that meets State-determined requirements for such monitoring. A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under paragraph (a)(2) of this section to meet the requirements of paragraph (b) of this section. State-determined assessment source water monitoring requirements may include:

(1) Collection of a total of 12 ground water source samples that represent each month the system provides ground water to the public,

(2) Collection of samples from each well unless the system obtains written State approval to conduct monitoring at one or more wells within the ground water system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting,

(3) Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used,

(4) Analysis of all ground water source samples using one of the analytical methods listed in the in paragraph (c)(2) of this section for the presence of *E. coli* , enterococci, or coliphage,

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(5) Collection of ground water source samples at a location prior to any treatment of the ground water source unless the State approves a sampling location after treatment, and

(6) Collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the State approves an alternate sampling location that is representative of the water quality of that well.

(c) Analytical methods.

(1) A ground water system subject to the source water monitoring requirements of paragraph (a) of this section must collect a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(2) A ground water system must analyze all ground water source samples collected under paragraph (a) of this section using one of the analytical methods listed in the following table in paragraph (c)(2) of this section or one of the alternative methods listed in appendix A to subpart C of this part for the presence of *E. coli*, enterococci, or coliphage:

ANALYTICAL METHODS FOR SOURCE WATER MONITORING

Fecal indicator[1]	Methodology	Method citation
E. coli	Colilert[3]	9223 B.[2]
	Colisure[3]	9223 B.[2]
	Membrane Filter Method with MI Agar	EPA Method 1604.[4]
	m-ColiBlue24 Test[5]	
	E*Colite Test[6]	
	EC–MUG[7]	9221 F.[2]
	NA–MUG[7]	9222 G.[2]
Enterococci	Multiple-Tube Technique	9230B.[2]
	Membrane Filter Technique	9230C.[2]
	Membrane Filter Technique	EPA Method 1600.[8]
	Enterolert[9]	
Coliphage	Two-Step Enrichment Presence-Absence Procedure	EPA Method 1601.[10]
	Single Agar Layer Procedure	EPA Method 1602.[11]

Analyses must be conducted in accordance with the documents listed below. The Director of the Federal Register approves the incorporation by reference of the documents listed in footnotes 2–11 in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Copies may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW., EPA West, Room B102, Washington DC 20460 (Telephone: 202–566–2426); or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

[1] The time from sample collection to initiation of analysis may not exceed 30 hours. The ground water system is encouraged but is not required to hold samples below 10 °C during transit.

[2] Methods are described in Standard Methods for the Examination of Water and Wastewater 20th edition (1998) and copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005–2605.

[3] Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

[4] EPA Method 1604: Total Coliforms and Escherichia coli in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium); September 2002, EPA 821–R–02–024. Method is available at http://www.epa.gov/nerlcwww/1604sp02.pdf or from EPA's Water Resource Center (RC–4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[5] A description of the m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24®Broth," Method No. 10029 Revision 2, August 17, 1999, is available from Hach Company, 100 Dayton Ave., Ames, IA 50010 or from EPA's Water Resource Center (RC–4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

*[6] A description of the E*Colite Test, "Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water, January 9, 1998, is available from Charm Sciences, Inc., 659 Andover St., Lawrence, MA 01843–1032 or from EPA's Water Resource Center (RC–4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.*

[7] EC–MUG (Method 9221F) or NA–MUG (Method 9222G) can be used for E. coli testing step as described in § 141.21(f)(6)(i) or (ii) after use of Standard Methods 9221 B, 9221 D, 9222 B, or 9222 C.

[8] EPA Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl–β–D–Glucoside Agar (mEI) EPA 821–R–02–022 (September 2002) is an approved variation of Standard Method 9230C. The method is available at http://www.epa.gov/nerlcwww/1600sp02.pdf or from EPA's Water Resource Center (RC–4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460. The holding time and temperature for ground water samples are specified in footnote 1 above, rather than as specified in Section 8 of EPA Method 1600.

[9] Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092. Preparation and use of the medium is set forth in the article "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters," by Budnick, G.E., Howard, R.T., and Mayo, D.R., 1996, Applied and Environmental Microbiology, 62:3881–3884.

[10] EPA Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure; April 2001, EPA 821–R–01–030. Method is available at http://www.epa.gov/nerlcwww/1601ap01.pdf or from EPA's Water Resource Center (RC–4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[11] EPA Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure; April 2001, EPA 821–R–01–029. Method is available at http://www.epa.gov/nerlcwww/1602ap01.pdf or from EPA's Water Resource Center (RC–4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

(d) *Invalidation of a fecal indicator-positive ground water source sample*. (1) A ground water system may obtain State invalidation of a fecal indicator-positive ground water source sample collected under paragraph (a) of this section only under the conditions specified in paragraphs (d)(1)(i) and (ii) of this section.

(i) The system provides the State with written notice from the laboratory that improper sample analysis occurred; or

(ii) The State determines and documents in writing that there is substantial evidence that a fecal indicator-positive ground water source sample is not related to source water quality.

(2) If the State invalidates a fecal indicator-positive ground water source sample, the ground water system must collect another source water sample under paragraph (a) of this section within 24 hours of being notified by the State of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods in paragraph (c) of this section. The State may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the State must specify how much time the system has to collect the sample.

(e) *Sampling location*. (1) Any ground water source sample required under paragraph (a) of this section must be collected at a location prior to any treatment of the ground water source unless the State approves a sampling location after treatment.

(2) If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a State-approved location to meet the requirements of paragraph (a) of this section if the sample is representative of the water quality of that well.

(f) *New sources.* If directed by the State, a ground water system that places a new ground water source into service after November 30, 2009, must conduct assessment source water monitoring under paragraph (b) of this section. If directed by the State, the system must begin monitoring before the ground water source is used to provide water to the public.

(g) *Public notification.* A ground water system with a ground water source sample collected under paragraph (a) or (b) of this section that is fecal indicator-positive and that is not invalidated under paragraph (d) of this section, including consecutive systems served by the ground water source, must conduct public notification under § 141.202.

(h) *Monitoring violations.* Failure to meet the requirements of paragraphs (a)–(f) of this section is a monitoring violation and requires the ground water system to provide public notification under § 141.204.

§ 141.403. Treatment technique requirements for ground water systems.

(a) *Ground water systems with significant deficiencies or source water fecal contamination*. (1) The treatment technique requirements of this section must be met by ground water systems when a significant deficiency is identified or when a ground water source sample collected under § 141.402(a)(3) is fecal indicator-positive.

(2) If directed by the State, a ground water system with a ground water source sample collected under § 141.402(a)(2), § 141.402(a)(4), or § 141.402(b) that is fecal indicator-positive must comply with the treatment technique requirements of this section.

(3) When a significant deficiency is identified at a Subpart H public water system that uses both ground water and surface water or ground water under the direct influence of surface water, the system must comply with provisions of this paragraph except in

cases where the State determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or ground water under the direct influence of surface water.

(4) Unless the State directs the ground water system to implement a specific corrective action, the ground water system must consult with the State regarding the appropriate corrective action within 30 days of receiving written notice from the State of a significant deficiency, written notice from a laboratory that a ground water source sample collected under § 141.402(a)(3) was found to be fecal indicator-positive, or direction from the State that a fecal indicator positive collected under § 141.402(a)(2), § 141.402(a)(4), or § 141.402(b) requires corrective action. For the purposes of this subpart, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the State determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

(5) Within 120 days (or earlier if directed by the State) of receiving written notification from the State of a significant deficiency, written notice from a laboratory that a ground water source sample collected under § 141.402(a)(3) was found to be fecal indicator-positive, or direction from the State that a fecal indicator-positive sample collected under § 141.402(a)(2), § 141.402(a)(4), or § 141.402(b) requires corrective action, the ground water system must either:

(i) Have completed corrective action in accordance with applicable State plan review processes or other State guidance or direction, if any, including State-specified interim measures; or

(ii) Be in compliance with a State-approved corrective action plan and schedule subject to the conditions specified in paragraphs (a)(5)(ii)(A) and (a)(5)(ii)(B) of this section.

(A) Any subsequent modifications to a State-approved corrective action plan and schedule must also be approved by the State.

(B) If the State specifies interim measures for protection of the public health pending State approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the State.

(6) *Corrective action alternatives.* Ground water systems that meet the conditions of paragraph (a)(1) or (a)(2) of this section must implement one or more of the following corrective action alternatives:

(i) Correct all significant deficiencies;

(ii) Provide an alternate source of water;

(iii) Eliminate the source of contamination; or

(iv) Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.

(7) *Special notice to the public of significant deficiencies or source water fecal contamination*. (i) In addition to the applicable public notification requirements of § 141.202, a community ground water system that receives notice from the State of a significant deficiency or notification of a fecal indicator-positive ground water source

sample that is not invalidated by the State under § 141.402(d) must inform the public served by the water system under § 141.153(h)(6) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the State to be corrected under paragraph (a)(5) of this section.

(ii) In addition to the applicable public notification requirements of § 141.202, a non-community ground water system that receives notice from the State of a significant deficiency must inform the public served by the water system in a manner approved by the State of any significant deficiency that has not been corrected within 12 months of being notified by the State, or earlier if directed by the State. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

(A) The nature of the significant deficiency and the date the significant deficiency was identified by the State;

(B) The State-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

(C) For systems with a large proportion of non-English speaking consumers, as determined by the State, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(iii) If directed by the State, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under paragraph (a)(7)(ii) of this section.

(b) *Compliance monitoring*—(1) *Existing ground water sources.* A ground water system that is not required to meet the source water monitoring requirements of this subpart for any ground water source because it provides at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for any ground water source before December 1, 2009, must notify the State in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for the specified ground water source and begin compliance monitoring in accordance with paragraph (b)(3) of this section by December 1, 2009. Notification to the State must include engineering, operational, or other information that the State requests to evaluate the submission. If the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source, the system must conduct ground water source monitoring as required under § 141.402.

(2) *New ground water sources.* A ground water system that places a ground water source in service after November 30, 2009, that is not required to meet the source water monitoring requirements of this subpart because the system provides at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-

log virus inactivation and removal) before or at the first customer for the ground water source must comply with the requirements of paragraphs (b)(2)(i), (b)(2)(ii) and (b)(2)(iii) of this section.

(i) The system must notify the State in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source. Notification to the State must include engineering, operational, or other information that the State requests to evaluate the submission.

(ii) The system must conduct compliance monitoring as required under § 141.403(b)(3) of this subpart within 30 days of placing the source in service.

(iii) The system must conduct ground water source monitoring under § 141.402 if the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.

(3) *Monitoring requirements.* A ground water system subject to the requirements of paragraphs (a), (b)(1) or (b)(2) of this section must monitor the effectiveness and reliability of treatment for that ground water source before or at the first customer as follows:

(i) Chemical disinfection—(A) *Ground water systems serving greater than 3,300 people.* A ground water system that serves greater than 3,300 people must continuously monitor the residual disinfectant concentration using analytical methods specified in § 141.74(a)(2) at a location approved by the State and must record the lowest residual disinfectant concentration each day that water from the ground water source is served to the public. The ground water system must maintain the State-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. If there is a failure in the continuous monitoring equipment, the ground water system must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.

(B) *Ground water systems serving 3,300 or fewer people.* A ground water system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in § 141.74(a)(2) at a location approved by the State and record the residual disinfection concentration each day that water from the ground water source is served to the public. The ground water system must maintain the State-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. The ground water system must take a daily grab sample during the hour of peak flow or at another time specified by the State. If any daily grab sample measurement falls below the State-determined residual disinfectant concentration, the ground water system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the State-determined level. Alternatively, a ground water system that serves 3,300 or fewer people may monitor continuously and meet the requirements of paragraph (b)(3)(i)(A) of this section.

(ii) *Membrane filtration.* A ground water system that uses membrane filtration to meet the requirements of this subpart must monitor the membrane filtration process in

accordance with all State-specified monitoring requirements and must operate the membrane filtration in accordance with all State-specified compliance requirements. A ground water system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when:

(A) The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

(B) The membrane process is operated in accordance with State-specified compliance requirements; and

(C) The integrity of the membrane is intact.

(iii) *Alternative treatment.* A ground water system that uses a State-approved alternative treatment to meet the requirements of this subpart by providing at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer must:

(A) Monitor the alternative treatment in accordance with all State-specified monitoring requirements; and

(B) Operate the alternative treatment in accordance with all compliance requirements that the State determines to be necessary to achieve at least 4-log treatment of viruses.

(c) *Discontinuing treatment.* A ground water system may discontinue 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source if the State determines and documents in writing that 4-log treatment of viruses is no longer necessary for that ground water source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of § 141.402 of this subpart.

(d) Failure to meet the monitoring requirements of paragraph (b) of this section is a monitoring violation and requires the ground water system to provide public notification under § 141.204.

§ 141.404. Treatment technique violations for ground water systems.

(a) A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the State) of receiving written notice from the State of the significant deficiency, the system:

(1) Does not complete corrective action in accordance with any applicable State plan review processes or other State guidance and direction, including State specified interim actions and measures, or

(2) Is not in compliance with a State-approved corrective action plan and schedule.

(b) Unless the State invalidates a fecal indicator-positive ground water source sample under § 141.402(d), a ground water system is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the State) of meeting the conditions of § 141.403(a)(1) or § 141.403(a)(2), the system:

(1) Does not complete corrective action in accordance with any applicable State plan review processes or other State guidance and direction, including State-specified interim measures, or

(2) Is not in compliance with a State-approved corrective action plan and schedule.

(c) A ground water system subject to the requirements of § 141.403(b)(3) that fails to maintain at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

(d) Ground water system must give public notification under § 141.203 for the treatment technique violations specified in paragraphs (a), (b) and (c) of this section.

§ 141.405. Reporting and recordkeeping for ground water systems.

(a) *Reporting.* In addition to the requirements of § 141.31, a ground water system regulated under this subpart must provide the following information to the State:

(1) A ground water system conducting compliance monitoring under § 141.403(b) must notify the State any time the system fails to meet any State-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The ground water system must notify the State as soon as possible, but in no case later than the end of the next business day.

(2) After completing any corrective action under § 141.403(a), a ground water system must notify the State within 30 days of completion of the corrective action.

(3) If a ground water system subject to the requirements of § 141.402(a) does not conduct source water monitoring under § 141.402(a)(5)(ii), the system must provide documentation to the State within 30 days of the total coliform positive sample that it met the State criteria.

(b) *Recordkeeping.* In addition to the requirements of § 141.33, a ground water system regulated under this subpart must maintain the following information in its records:

(1) Documentation of corrective actions. Documentation shall be kept for a period of not less than ten years.

(2) Documentation of notice to the public as required under § 141.403(a)(7). Documentation shall be kept for a period of not less than three years.

(3) Records of decisions under § 141.402(a)(5)(ii) and records of invalidation of fecal indicator-positive ground water source samples under § 141.402(d). Documentation shall be kept for a period of not less than five years.

(4) For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under 22 California Code of Regulations section 64425. Documentation shall be kept for a period of not less than five years.

(5) For systems, including wholesale systems, that are required to perform compliance monitoring under § 141.403(b):

(i) Records of the State-specified minimum disinfectant residual. Documentation shall be kept for a period of not less than ten years.

(ii) Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the State-prescribed minimum residual

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disinfectant concentration for a period of more than four hours. Documentation shall be kept for a period of not less than five years.

(iii) Records of State-specified compliance requirements for membrane filtration and of parameters specified by the State for State-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours. Documentation shall be kept for a period of not less than five years.

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Addendum B: CA Long Term 2 Enhanced Surface Water Treatment Rule

This is a reference to text adopted pursuant to title 22, division 4, chapter 15, article 3.5, and section 64650(f) of the CCR.

The listed subparts in this addendum are taken from title 40, chapter I, subchapter D, part 141 in the CFR.

Only pertinent parts of the CFR are provided.

Subpart C—Monitoring and Analytical Requirements

§ 141.211. Special notice for repeated failure to conduct monitoring of the source water for *Cryptosporidium* and for failure to determine bin classification or mean *Cryptosporidium* level.

(a) *When is the special notice for repeated failure to monitor to be given?* The owner or operator of a community or non-community water system that is required to monitor source water under § 141.701 must notify persons served by the water system that monitoring has not been completed as specified no later than 30 days after the system has failed to collect any 3 months of monitoring as specified in § 141.701(c). The notice must be repeated as specified in section 64463.4(b)(2).

(b) *When is the special notice for failure to determine bin classification or mean Cryptosporidium level to be given?* The owner or operator of a community or non-community water system that is required to determine a bin classification under § 141.710, or to determine mean *Cryptosporidium* level under § 141.712, must notify persons served by the water system that the determination has not been made as required no later than 30 days after the system has failed report the determination as specified in § 141.710(e) or § 141.712(a), respectively. The notice must be repeated as specified in section 64463.4(b)(2). The notice is not required if the system is complying with a State-approved schedule to address the violation.

(c) *What is the form and manner of the special notice?* The form and manner of the public notice must follow the requirements for a Tier 2 public notice prescribed in section 64463.4(c). The public notice must be presented as required in section 64463.4(c).

(d) *What mandatory language must be contained in the special notice?* The notice must contain the following language, including the language necessary to fill in the blanks.

(1) The special notice for repeated failure to conduct monitoring must contain the following language:

We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the (treatment plant name) is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by (required bin determination date). We "did not monitor or test" or "did not complete all monitoring or testing" on schedule and, therefore, we may not be able

to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the deadline required, (date).

For more information, please call (name of water system contact) of (name of water system) at (phone number).

(2) The special notice for failure to determine bin classification or mean *Cryptosporidium* level must contain the following language:

We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by (date) whether water treatment at the (treatment plant name) is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of (date). For more information, please call (name of water system contact) of (name of water system) at (phone number).

(3) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

APPENDIX A TO SUBPART Q OF PART 141—NPDWR VIOLATIONS AND OTHER SITUATIONS REQUIRING PUBLIC NOTICE [1]

Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
I. Violations of National Primary Drinking Water Regulations (NPDWR): [3]				
A. Microbiological Contaminants				
1.a Total coliform bacteria †.....	2	141.63(a)	3	141.21(a)–(e)
1.b Total coliform (Monitoring or TT violations resulting from failure to perform assessments or corrective actions) ‡.....	2	141.860(b)	3	141.860(c)
1.c Seasonal system failure to follow State-approved start-up plan prior to serving water to the public. ‡	2	141.860(b)(2)		
2.a Fecal coliform/*E. coli*	1	141.63(b)	[4] 1,3	141.21(e)

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Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
2.b *E. coli* (MCL, monitoring, and reporting violations) ‡	1	141.860 (a)	3	141.860(c) 141.860(d)(2)
2.c *E.coli* (TT violations resulting from failure to perform level 2 Assessments or corrective action) ‡	2	141.860(b)		
3. Turbidity MCL	2	141.13(a)	3	141.22
4. Turbidity MCL (average of 2 days' samples >5 NTU).....	[5] 2, 1	141.13(b)	3	141.22
5. Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level).....	[6] 2, 1	141.71(a)(2), 141.71(c)(2)(i), 141.73(a)(2), 141.73 (b)(2), 141.73 (c)(2), 141.73(d), 141.173(a)(2), 141.173(b), 141.551(b)	3	141.74(a)(1), 141.74(b)(2), 141.74(c)(1), 141.174, 141.560(a)–(c), 141.561.
6. Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT).....	2	141.70–141.73	3	141.74
7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. turbidity level (TT).....	[7] 2	141.170–141.173, 141.500–141.553	3	141.172, 141.174, 141.530–141.544, 141.560–141.564.

Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
8. Filter Backwash Recycling Rule violations	2	141.76(c)	3	141.76(b), (d)
9. Long Term 1 Enhanced Surface Water Treatment Rule violations.	2	141.500–141.553	3	141.530–141.544, 141.560–141.564.
10. LT2ESWTR violations	2	141.710–141.720	[22] 2, 3	141.701–141.705 and 141.708–141.709.
11. Ground Water Rule violations	2	141.404	3	141.402(h), 141.403(d).
B. Inorganic Chemicals (IOCs)				
1. Antimony	2	141.62(b)	3	141.23(a), (c)
2. Arsenic	2	[8] 141.62(b)	3	[11] 141.23(a), (c)
3. Asbestos (fibers >10 μm)	2	141.62(b)	3	141.23(a)–(b)
4. Barium	2	141.62(b)	3	141.23(a), (c)
5. Beryllium	2	141.62(b)	3	141.23(a), (c)
6. Cadmium	2	141.62(b)	3	141.23(a), (c)
7. Chromium (total)	2	141.62(b)	3	141.23(a), (c)
8. Cyanide	2	141.62(b)	3	141.23(a), (c)
9. Fluoride	2	141.62(b)	3	141.23(a), (c)
10. Mercury (inorganic)	2	141.62(b)	3	141.23(a), (c)
11. Nitrate	1	141.62(b)	[12] 1, 3	141.23(a), (d), 141.23(f)(2)
12. Nitrite	1	141.62(b)	[12] 1, 3	141.23(a), (e), 141.23(f)(2)
13. Total Nitrate and Nitrite	1	141.62(b)	3	141.23(a)
14. Selenium	2	141.62(b)	3	141.23(a), (c)
15. Thallium	2	141.62(b)	3	141.23(a), (c)

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Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
C. Lead and Copper Rule (Action Level for lead is 0.015 mg/L, for copper is 1.3 mg/L)				
1. Lead and Copper Rule (TT)	2	141.80–141.85	3	141.86–141.89
D. Synthetic Organic Chemicals (SOCs)				
1. 2,4-D.....	2	141.61(c)	3	141.24(h)
2. 2,4,5-TP (Silvex).....	2	141.61(c)	3	141.24(h)
3. Alachlor	2	141.61(c)	3	141.24(h)
4. Atrazine	2	141.61(c)	3	141.24(h)
5. Benzo(a)pyrene (PAHs).....	2	141.61(c)	3	141.24(h)
6. Carbofuran.....	2	141.61(c)	3	141.24(h)
7. Chlordane.....	2	141.61(c)	3	141.24(h)
8. Dalapon	2	141.61(c)	3	141.24(h)
9. Di (2-ethylhexyl) adipate	2	141.61(c)	3	141.24(h)
10. Di (2-ethylhexyl) phthalate	2	141.61(c)	3	141.24(h)
11. Dibromochloropropane	2	141.61(c)	3	141.24(h)
12. Dinoseb	2	141.61(c)	3	141.24(h)
13. Dioxin (2,3,7,8-TCDD)	2	141.61(c)	3	141.24(h)
14. Diquat.....	2	141.61(c)	3	141.24(h)
15. Endothall.....	2	141.61(c)	3	141.24(h)
16. Endrin	2	141.61(c)	3	141.24(h)
17. Ethylene dibromide	2	141.61(c)	3	141.24(h)
18. Glyphosate	2	141.61(c)	3	141.24(h)
19. Heptachlor	2	141.61(c)	3	141.24(h)
20. Heptachlor epoxide.....	2	141.61(c)	3	141.24(h)
21. Hexachlorobenzene.....	2	141.61(c)	3	141.24(h)

Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
22. Hexachlorocyclo-pentadiene	2	141.61(c)	3	141.24(h)
23. Lindane	2	141.61(c)	3	141.24(h)
24. Methoxychlor	2	141.61(c)	3	141.24(h)
25. Oxamyl (Vydate)	2	141.61(c)	3	141.24(h)
26. Pentachlorophenol	2	141.61(c)	3	141.24(h)
27. Picloram	2	141.61(c)	3	141.24(h)
28. Polychlorinated biphenyls (PCBs)	2	141.61(c)	3	141.24(h)
29. Simazine	2	141.61(c)	3	141.24(h)
30. Toxaphene	2	141.61(c)	3	141.24(h)
E. Volatile Organic Chemicals (VOCs)				
1. Benzene	2	141.61(a)	3	141.24(f)
2. Carbon tetrachloride	2	141.61(a)	3	141.24(f)
3. Chlorobenzene (monochlorobenzene)	2	141.61(a)	3	141.24(f)
4. o-Dichlorobenzene	2	141.61(a)	3	141.24(f)
5. p-Dichlorobenzene	2	141.61(a)	3	141.24(f)
6. 1,2-Dichloroethane	2	141.61(a)	3	141.24(f)
7. 1,1-Dichloroethylene	2	141.61(a)	3	141.24(f)
8. cis-1,2-Dichloroethylene	2	141.61(a)	3	141.24(f)
9. trans-1,2-Dichloroethylene	2	141.61(a)	3	141.24(f)
10. Dichloromethane	2	141.61(a)	3	141.24(f)
11. 1,2-Dichloropropane	2	141.61(a)	3	141.24(f)
12. Ethylbenzene	2	141.61(a)	3	141.24(f)
13. Styrene	2	141.61(a)	3	141.24(f)
14. Tetrachloroethylene	2	141.61(a)	3	141.24(f)
15. Toluene	2	141.61(a)	3	141.24(f)
16. 1,2,4-Trichlorobenzene	2	141.61(a)	3	141.24(f)

Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
17. 1,1,1-Trichloroethane.....	2	141.61(a)	3	141.24(f)
18. 1,1,2-Trichloroethane.....	2	141.61(a)	3	141.24(f)
19. Trichloroethylene	2	141.61(a)	3	141.24(f)
20. Vinyl chloride	2	141.61(a)	3	141.24(f)
21. Xylenes (total).....	2	141.61(a)	3	141.24(f)
F. Radioactive Contaminants				
1. Beta/photon emitters.....	2	141.66(d)	3	141.25(a) 141.26(b)
2. Alpha emitters.....	2	141.66(c)	3	141.25(a) 141.26(a)
3. Combined radium (226 and 228).....	2	141.66(b)	3	141.25(a) 141.26(a)
4. Uranium.....	[9] 2	141.66(e)	[10] 3	141.25(a) 141.26(a)
G.Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs). [13]				
1. Total trihalomethanes (TTHMs)	2	[14] 141.64(b)	3	141.132(a)–(b), 141.600– 141.605, 141.620– 141.629
2. Haloacetic Acids (HAA5).....	2	141.64(b)	3	141.132(a)–(b), 141.600– 141.605,

Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
				141.620–141.629
3. Bromate	2	141.64(a)	3	141.132(a)–(b)
4. Chlorite	2	141.64(a)	3	141.132(a)–(b)
5. Chlorine (MRDL)	2	141.65(a)	3	141.132(a), (c)
6. Chloramine (MRDL)	2	141.65(a)	3	141.132(a), (c)
7. Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	141.65(a), 141.133(c)(3)	2 [15], 3	141.132(a), (c), 141.133(c)(2)
8. Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL	[16] 1	141.65(a), 141.133(c)(3)	1	141.132(a), (c), 141.133(c)(2)
9. Control of DBP precursors—TOC (TT)	2	141.135(a)–(b)	3	141.132(a), (d)
10. Bench marking and disinfection profiling	N/A	N/A	3	141.172 141.530–141.544.
11. Development of monitoring plan	N/A	N/A	3	141.132(f)
H. Other Treatment Techniques				
1. Acrylamide (TT)	2	141.111	N/A	N/A
2. Epichlorohydrin (TT)	2	141.111	N/A	N/A
II. Unregulated Contaminant Monitoring: [17]				
A. Unregulated contaminants	N/A	N/A	N/A	141.40
B. Nickel	N/A	N/A	3	141.23(c), (k)
III. Public Notification for Variances and Exemptions:				

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Contaminant	MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
A. Operation under a variance or exemption.....	3	[18] 1415, 1416,	N/A	N/A
B. Violation of conditions of a variance or exemption	2	1415, 1416,[19] 142.307	N/A	N/A
IV. Other Situations Requiring Public Notification:				
A. Fluoride secondary maximum contaminant level (SMCL) exceedance .	3	143.3	N/A	N/A
B. Exceedance of nitrate MCL for non-community systems, as allowed by primacy agency	1	141.11(d)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	141.40	N/A	N/A
D. Waterborne disease outbreak	1	141.2, 141.71(c)(2)(ii)	N/A	N/A
E. Other waterborne emergency [20]	1	N/A	N/A	N/A
F. Source Water Sample Positive for GWR Fecal indicators: *E. coli*, enterococci, or coliphage.....	1	141.402(g)	N/A	N/A
G. Other situations as determined by primacy agency	[21] 1, 2, 3	N/A	N/A	N/A

APPENDIX A—ENDNOTES

† Until March 31, 2016.

‡ Beginning April 1, 2016.

1. Violations and other situations not listed in this table (e.g., failure to prepare Consumer Confidence Reports), do not require notice, unless otherwise determined by the primacy agency. Primacy agencies may, at their option, also require a more stringent public notice tier (e.g., Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed in this Appendix, as authorized under sections 64463.1 and 64463.4.

2. MCL—Maximum contaminant level, MRDL—Maximum residual disinfectant level, TT—Treatment technique

3. The term Violations of National Primary Drinking Water Regulations (NPDWR) is used here to include violations of MCL, MRDL, treatment technique, monitoring, and testing procedure requirements.

4. Failure to test for fecal coliform or *E. coli* is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3.

5. Systems that violate the turbidity MCL of 5 NTU based on an average of measurements over two consecutive days must consult with the primacy agency within 24 hours after learning of the violation. Based on this consultation, the primacy agency may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the primacy agency in the 24-hour period, the violation is automatically elevated to Tier 1.

6. Systems with treatment technique violations involving a single exceedance of a maximum turbidity limit under the Surface Water Treatment Rule (SWTR), the Interim Enhanced Surface Water Treatment Rule (IESWTR), or the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) are required to consult with the primacy agency within 24 hours after learning of the violation. Based on this consultation, the primacy agency may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the primacy agency in the 24-hour period, the violation is automatically elevated to Tier 1.

7. Most of the requirements of the Interim Enhanced Surface Water Treatment Rule (63 *FR* 69477) (§ § 141.170–141.171, 141.173-141.174) become effective January 1, 2002 for Subpart H systems (surface water systems and ground water systems under the direct influence of surface water) serving at least 10,000 persons. However, § 141.172 has some requirements that become effective as early as April 16, 1999. The Surface Water Treatment Rule remains in effect for systems serving at least 10,000 persons even after 2002; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supercede the SWTR.

8. The arsenic MCL citations are effective January 23, 2006. Until then, the citations are § 141.11(b) and § 141.23(n).

9. The uranium MCL Tier 2 violation citations are effective December 8, 2003 for all community water systems.

10. The uranium Tier 3 violation citations are effective December 8, 2000 for all community water systems.

11. The arsenic Tier 3 violation MCL citations are effective January 23, 2006. Until then, the citations are § 141.23(a), (l).

12. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

13. Subpart H community and non-transient non-community systems serving ≥10,000 must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements beginning January 1, 2002. All other community and non-transient non-community systems must meet the MCLs and MRDLs beginning January 1, 2004. Subpart H transient non-community systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. Subpart H transient non-community systems serving fewer than 10,000 persons and using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

14. § § 141.64(b)(1) 141.132(a)–(b) apply until § § 141.620–141.630 take effect under the schedule in § 141.620(c).

15. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.

16. If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed

the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

17. Some water systems must monitor for certain unregulated contaminants listed in § 141.40.

18. This citation refers to § § 1415 and 1416 of the Safe Drinking Water Act. § § 1415 and 1416 require that "a schedule prescribed. . . for a public water system granted a variance [or exemption] shall require compliance by the system. . ."

19. In addition to § § 1415 and 1416 of the Safe Drinking Water Act, 40 CFR 142.307 specifies the items and schedule milestones that must be included in a variance for small systems.

20. Other waterborne emergencies require a Tier 1 public notice under § 141.202(a) for situations that do not meet the definition of a waterborne disease outbreak given in 40 CFR 141.2 but that still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens into the source water.

21. Primacy agencies may place other situations in any tier they believe appropriate, based on threat to public health.

22. Failure to collect three or more samples for *Cryptosporidium* analysis is a Tier 2 violation requiring special notice as specified in § 141.211. All other monitoring and testing procedure violations are Tier 3.

[65 FR 26035, May 4, 2000, as amended at 65 FR 76750, Dec. 7, 2000; 66 FR 7065, Jan. 22, 2001; 66 FR 31104, June 8, 2001; 67 FR 1836, Jan. 14, 2002; 69 FR 38856, June 29, 2004; 71 FR 483, Jan. 4, 2006; 71 FR 768, Jan. 5, 2006; 71 FR 65652, Nov. 8, 2006; 78 FR 10350, Feb. 13, 2013]

§ 141.700. General requirements.

(a) The requirements of this subpart W are national primary drinking water regulations. The regulations in this subpart establish or extend treatment technique requirements in lieu of maximum contaminant levels for *Cryptosporidium*. These requirements are in addition to requirements for filtration and disinfection in Title 22, Division 4, Chapter 17, California Code of Regulations.

(b) *Applicability*. The requirements of this subpart apply to all Title 22, Division 4, Chapter 17, California Code of Regulations systems, which are public water systems supplied by a surface water source and public water systems supplied by a ground water source under the direct influence of surface water.

(1) Wholesale systems, as defined in section 64402.30, must comply with the requirements of this subpart based on the population of the largest system in the combined distribution system.

(2) The requirements of this subpart for filtered systems apply to systems required by Title 22, Division 4, Chapter 17, California Code of Regulations to provide filtration treatment, whether or not the system is currently operating a filtration system.

(3) The requirements of this subpart for unfiltered systems apply only to unfiltered systems that timely met and continue to meet the filtration avoidance criteria in Title 22, Division 4, Chapter 17, California Code of Regulations, as applicable.

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(c) *Requirements*. Systems subject to this subpart must comply with the following requirements:

(1) Systems must conduct an initial and a second round of source water monitoring for each plant that treats a surface water or GWUDI source. This monitoring may include sampling for *Cryptosporidium*, *E. coli*, and turbidity as described in § § 141.701 through 141.706, to determine what level, if any, of additional *Cryptosporidium* treatment they must provide.

(2) Systems that plan to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in § § 141.708 through 141.709.

(3) Filtered systems must determine their *Cryptosporidium* treatment bin classification as described in § 141.710 and provide additional treatment for *Cryptosporidium*, if required, as described in § 141.711. All unfiltered systems must provide treatment for *Cryptosporidium* as described in § 141.712. Filtered and unfiltered systems must implement *Cryptosporidium* treatment according to the schedule in § 141.713.

(4) Systems with uncovered finished water storage facilities must comply with the requirements to cover the facility or treat the discharge from the facility as described in § 141.714.

(5) Systems required to provide additional treatment for *Cryptosporidium* must implement microbial toolbox options that are designed and operated as described in § § 141.715 through 141.720.

(6) Systems must comply with the applicable recordkeeping and reporting requirements described in §§ 141.721 through 141.722.

(7) Systems must address significant deficiencies identified in sanitary surveys performed by EPA as described in § 141.723.

§ 141.701. Source water monitoring.

(a) *Initial round of source water monitoring.* Systems must conduct the following monitoring on the schedule in paragraph (c) of this section unless they meet the monitoring exemption criteria in paragraph (d) of this section.

(1) Filtered systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

(2) Unfiltered systems serving at least 10,000 people must sample their source water for *Cryptosporidium* at least monthly for 24 months.

(3)(i) Filtered systems serving fewer than 10,000 people must sample their source water for *E. coli* at least once every two weeks for 12 months.

(ii) A filtered system serving fewer than 10,000 people may avoid *E. coli* monitoring if the system notifies the State that it will monitor for *Cryptosporidium* as described in paragraph (a)(4) of this section. The system must notify the State no later than 3 months prior to the date the system is otherwise required to start *E. coli* monitoring under § 141.701(c).

(4) Filtered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following, based on monitoring conducted under paragraph (a)(3) of this section:

(i) For systems using lake/reservoir sources, the annual mean *E. coli* concentration is greater than 10 *E. coli* /100 mL.

(ii) For systems using flowing stream sources, the annual mean *E. coli* concentration is greater than 50 *E. coli* /100 mL.

(iii) The system does not conduct *E. coli* monitoring as described in paragraph (a)(3) of this section.

(iv) Systems using ground water under the direct influence of surface water (GWUDI) must comply with the requirements of paragraph (a)(4) of this section based on the *E. coli* level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to systems using lake/reservoir sources.

(5) For filtered systems serving fewer than 10,000 people, the State may approve monitoring for an indicator other than *E. coli* under paragraph (a)(3) of this section. The State also may approve an alternative to the *E. coli* concentration in paragraph (a)(4)(i), (ii) or (iv) of this section to trigger *Cryptosporidium* monitoring. This approval by the State must be provided to the system in writing and must include the basis for the State's determination that the alternative indicator and/or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 *Cryptosporidium* level in § 141.710.

(6) Unfiltered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months.

(7) Systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

(b) *Second round of source water monitoring*. Systems must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in paragraph (a) of this section, unless they meet the monitoring exemption criteria in paragraph (d) of this section. Systems must conduct this monitoring on the schedule in paragraph (c) of this section.

(c) *Monitoring schedule*. Systems must begin the monitoring required in paragraphs (a) and (b) of this section no later than the month beginning with the date listed in this table:

SOURCE WATER MONITORING STARTING DATES TABLE

Systems that serve . . .	Must begin the first round of source water monitoring no later than the month beginning . . .	And must begin the second round of source water monitoring no later than the month beginning . . .
(1) At least 100,000 people	(i) October 1, 2006	(ii) April 1, 2015.
(2) From 50,000 to 99,999 people	(i) April 1, 2007	(ii) October 1, 2015.
(3) From 10,000 to 49,999 people	(i) April 1, 2008	(ii) October 1, 2016.

(4) Fewer than 10,000 and monitor for *E. coli*[a].	(i) October 1, 2008	(ii) October 1, 2017.
(5) Fewer than 10,000 and monitor for *Cryptosporidium*[b].	(i) April 1, 2010	(ii) April 1, 2019.

[a] Applies only to filtered systems.
[b] Applies to filtered systems that meet the conditions of paragraph (a)(4) of this section and unfiltered systems.

(d) Monitoring avoidance.

(1) Filtered systems are not required to conduct source water monitoring under this subpart if the system will provide a total of at least 5.5-log of treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in § 141.711.

(2) Unfiltered systems are not required to conduct source water monitoring under this subpart if the system will provide a total of at least 3-log *Cryptosporidium* inactivation, equivalent to meeting the treatment requirements for unfiltered systems with a mean *Cryptosporidium* concentration of greater than 0.01 oocysts/L in § 141.712.

(3) If a system chooses to provide the level of treatment in paragraph (d)(1) or (2) of this section, as applicable, rather than start source water monitoring, the system must notify the State in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under § 141.702. Alternatively, a system may choose to stop sampling at any point after it has initiated monitoring if it notifies the State in writing that it will provide this level of treatment. Systems must install and operate technologies to provide this level of treatment by the applicable treatment compliance date in § 141.713.

(e) *Plants operating only part of the year*. Systems with Title 22, Division 4, Chapter 17, California Code of Regulations plants that operate for only part of the year must conduct source water monitoring in accordance with this subpart, but with the following modifications:

(1) Systems must sample their source water only during the months that the plant operates unless the State specifies another monitoring period based on plant operating practices.

(2) Systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* must collect at least six *Cryptosporidium* samples per year during each of two years of monitoring. Samples must be evenly spaced throughout the period the plant operates.

(f)(1) *New sources*. A system that begins using a new source of surface water or GWUDI after the system is required to begin monitoring under paragraph (c) of this section must monitor the new source on a schedule the State approves. Source water monitoring must meet the requirements of this subpart. The system must also meet the bin classification and *Cryptosporidium* treatment requirements of § § 141.710 and 141.711 or § 141.712, as applicable, for the new source on a schedule the State approves.

(2) The requirements of § 141.701(f) apply to Title 22, Division 4, Chapter 17, California Code of Regulations systems that begin operation after the monitoring start date applicable to the system's size under paragraph (c) of this section.

(3) The system must begin a second round of source water monitoring no later than 6 years following initial bin classification under § 141.710 or determination of the mean *Cryptosporidium* level under § 141.712, as applicable.

(g) Failure to collect any source water sample required under this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of § § 141.702 through 141.706 is a monitoring violation.

(h) *Grandfathering monitoring data*. Systems may use (grandfather) monitoring data collected prior to the applicable monitoring start date in paragraph (c) of this section to meet the initial source water monitoring requirements in paragraph (a) of this section. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted under this paragraph must meet the requirements in § 141.707.

§ 141.702. Sampling schedules.

(a) Systems required to conduct source water monitoring under § 141.701 must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.

(1) Systems must submit sampling schedules no later than 3 months prior to the applicable date listed in § 141.701(c) for each round of required monitoring.

(2)(i) Systems serving at least 10,000 people must submit their sampling schedule for the initial round of source water monitoring under § 141.701(a) to EPA electronically at https://intranet.epa.gov/lt2/.

(ii) If a system is unable to submit the sampling schedule electronically, the system may use an alternative approach for submitting the sampling schedule that EPA approves.

(3) Systems serving fewer than 10,000 people must submit their sampling schedules for the initial round of source water monitoring § 141.701(a) to the State.

(4) Systems must submit sampling schedules for the second round of source water monitoring § 141.701(b) to the State.

(5) If EPA or the State does not respond to a system regarding its sampling schedule, the system must sample at the reported schedule.

(b) Systems must collect samples within two days before or two days after the dates indicated in their sampling schedule (*i.e.*, within a five-day period around the schedule date) unless one of the conditions of paragraph (b)(1) or (2) of this section applies.

(1) If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the State approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the State concurrent with the shipment of the sample to the laboratory.

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(2)(i) If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in § 141.704, or the failure of an approved laboratory to analyze the sample, then the system must collect a replacement sample.

(ii) The system must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the State approves an alternative resampling date. The system must submit an explanation for the delayed sampling date to the State concurrent with the shipment of the sample to the laboratory.

(c) Systems that fail to meet the criteria of paragraph (b) of this section for any source water sample required under § 141.701 must revise their sampling schedules to add dates for collecting all missed samples. Systems must submit the revised schedule to the State for approval prior to when the system begins collecting the missed samples.

§ 141.703. Sampling locations.

(a) Systems required to conduct source water monitoring under § 141.701 must collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the State may approve one set of monitoring results to be used to satisfy the requirements of § 141.701 for all plants.

(b)(1) Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the system meets the condition of paragraph (b)(2) of this section.

(2) The State may approve a system to collect a source water sample after chemical treatment. To grant this approval, the State must determine that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(c) Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(d) Bank filtration.

(1) Systems that receive *Cryptosporidium* treatment credit for bank filtration under sections 64653(e) and (f), as applicable, must collect source water samples in the surface water prior to bank filtration.

(2) Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well (*i.e.*, after bank filtration). Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under § 141.717(c).

(e) *Multiple sources*. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, must collect samples as specified in paragraph (e)(1) or (2) of this section. The use of multiple sources during monitoring must be consistent with routine operational practice.

(1) If a sampling tap is available where the sources are combined prior to treatment, systems must collect samples from the tap.

(2) If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must follow either paragraph (e)(2)(i) or (ii) of this section for sample analysis.

(i) Systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

(ii) Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(f) *Additional Requirements*. Systems must submit a description of their sampling location(s) to the State at the same time as the sampling schedule required under § 141.702. This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the State does not respond to a system regarding sampling location(s), the system must sample at the reported location(s).

§ 141.704. Analytical methods.

(a) *Cryptosporidium*. Systems must analyze for *Cryptosporidium* using Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA, 2005, United States Environmental Protection Agency, EPA–815–R–05–002 or Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA–815–R–05–001, which are incorporated by reference, or alternative methods listed in appendix A to subpart C of this part. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of these methods online from http://www.epa.gov/safewater/ disinfection/lt2 or from the United States Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Ave., NW., Washington, DC 20460 (Telephone: 800–426–4791). You may inspect a copy at the Water Docket in the EPA Docket Center, 1301 Constitution Ave., NW., Washington, DC (Telephone: 202–566–2426) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to:
http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html
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(1) Systems must analyze at least a 10 L sample or a packed pellet volume of at least 2 mL as generated by the methods listed in paragraph (a) of this section. Systems unable to process a 10 L sample must analyze as much sample volume as can be filtered by two filters approved by EPA for the methods listed in paragraph (a) of this section, up to a packed pellet volume of at least 2 mL.

(2)(i) Matrix spike (MS) samples, as required by the methods in paragraph (a) of this section, must be spiked and filtered by a laboratory approved for *Cryptosporidium* analysis under § 141.705.

(ii) If the volume of the MS sample is greater than 10 L, the system may filter all but 10 L of the MS sample in the field, and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory must spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

(3) Flow cytometer-counted spiking suspensions must be used for MS samples and ongoing precision and recovery (OPR) samples.

(b) *E. coli*. System must use methods for enumeration of *E. coli* in source water approved in § 136.3(a) of this chapter or alternative methods listed in appendix A to subpart C of this part.

(1) The time from sample collection to initiation of analysis may not exceed 30 hours unless the system meets the condition of paragraph (b)(2) of this section.

(2) The State may approve on a case-by-case basis the holding of an *E. coli* sample for up to 48 hours between sample collection and initiation of analysis if the State determines that analyzing an *E. coli* sample within 30 hours is not feasible. *E. coli* samples held between 30 to 48 hours must be analyzed by the Colilert reagent version of Standard Method 9223B as listed in § 136.3(a) of this title.

(3) Systems must maintain samples between 0 °C and 10 °C during storage and transit to the laboratory.

(c) Turbidity. Systems must use methods for turbidity measurement approved in § 141.74(a)(1).

§ 141.705. Approved laboratories.

(a) *Cryptosporidium*. Systems must have *Cryptosporidium* samples analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water or a laboratory that has been certified for *Cryptosporidium* analysis by an equivalent State laboratory certification program.

(b) *E. coli*. Any laboratory certified by the EPA, the National Environmental Laboratory Accreditation Conference or the State for total coliform or fecal coliform analysis under § 141.74 is approved for *E. coli* analysis under this subpart when the laboratory uses the same technique for *E. coli* that the laboratory uses for § 141.74.

(c) *Turbidity*. Measurements of turbidity must be made by a party approved by the State.

§ 141.706. Reporting source water monitoring results.

(a) Systems must report results from the source water monitoring required under § 141.701 no later than 10 days after the end of the first month following the month when the sample is collected.

(b)(1) All systems serving at least 10,000 people must report the results from the initial source water monitoring required under § 141.701(a) to EPA electronically at https://intranet.epa.gov/lt2/.

(2) If a system is unable to report monitoring results electronically, the system may use an alternative approach for reporting monitoring results that EPA approves.

(c) Systems serving fewer than 10,000 people must report results from the initial source water monitoring required under § 141.701(a) to the State.

(d) All systems must report results from the second round of source water monitoring required under § 141.701(b) to the State.

(e) Systems must report the applicable information in paragraphs (e)(1) and (2) of this section for the source water monitoring required under § 141.701.

(1) Systems must report the following data elements for each *Cryptosporidium* analysis:

1. PWS ID.
2. Facility ID.
3. Sample collection date.
4. Sample type (field or matrix spike).
5. Sample volume filtered (L), to nearest 1/4 L.
6. Was 100% of filtered volume examined.
7. Number of oocysts counted.

(i) For matrix spike samples, systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

(ii) For samples in which less than 10 L is filtered or less than 100% of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume.

(iii) For samples in which less than 100% of sample volume is examined, systems must also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

(2) Systems must report the following data elements for each *E. coli* analysis:

Data element.
1. PWS ID.
2. Facility ID.
3. Sample collection date.
4. Analytical method number.
5. Method type.
6. Source type (flowing stream, lake/reservoir, GWUDI).
7. *E. coli*/100 mL.
8. Turbidity.[1]

[1] Systems serving fewer than 10,000 people that are not required to monitor for turbidity under § 141.701 are not required to report turbidity with their *E. coli* results.

§ 141.707. Grandfathering previously collected data.

(a)(1) Systems may comply with the initial source water monitoring requirements of § 141.701(a) by grandfathering sample results collected before the system is required to begin monitoring (*i.e.*, previously collected data). To be grandfathered, the sample results and analysis must meet the criteria in this section and the State must approve.

(2) A filtered system may grandfather *Cryptosporidium* samples to meet the requirements of § 141.701(a) when the system does not have corresponding *E. coli* and turbidity samples. A system that grandfathers *Cryptosporidium* samples without *E. coli*

and turbidity samples is not required to collect *E. coli* and turbidity samples when the system completes the requirements for *Cryptosporidium* monitoring under § 141.701(a).

(b) *E. coli* sample analysis. The analysis of *E. coli* samples must meet the analytical method and approved laboratory requirements of § § 141.704 through 141.705.

(c) *Cryptosporidium* sample analysis. The analysis of *Cryptosporidium* samples must meet the criteria in this paragraph.

(1) Laboratories analyzed *Cryptosporidium* samples using one of the analytical methods in paragraphs (c)(1)(i) through (vi) of this section, which are incorporated by reference. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of these methods on-line from the United States Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Ave, NW, Washington, DC 20460 (Telephone: 800–426–4791). You may inspect a copy at the Water Docket in the EPA Docket Center, 1301 Constitution Ave., NW, Washington, DC, (Telephone: 202–566–2426) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html .

(i) Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA–815–R–05–002.

(ii) Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA–815–R–05–001.

(iii) Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2001, United States Environmental Protection Agency, EPA–821–R–01–025.

(iv) Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 2001, United States Environmental Protection Agency, EPA–821–R–01–026.

(v) Method 1623: *Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 1999, United States Environmental Protection Agency, EPA–821–R–99–006.

(vi) Method 1622: *Cryptosporidium in Water by Filtration/IMS/FA*, 1999, United States Environmental Protection Agency, EPA–821–R–99–001.

(2) For each *Cryptosporidium* sample, the laboratory analyzed at least 10 L of sample or at least 2 mL of packed pellet or as much volume as could be filtered by 2 filters that EPA approved for the methods listed in paragraph (c)(1) of this section.

(d) *Sampling location*. The sampling location must meet the conditions in § 141.703.

(e) *Sampling frequency*. *Cryptosporidium* samples were collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in § 141.702(b)(1) and (2) if the system provides documentation of the condition when reporting monitoring results.

(1) The State may approve grandfathering of previously collected data where there are time gaps in the sampling frequency if the system conducts additional monitoring the State specifies to ensure that the data used to comply with the initial source water monitoring requirements of § 141.701(a) are seasonally representative and unbiased.

(2) Systems may grandfather previously collected data where the sampling frequency within each month varied. If the *Cryptosporidium* sampling frequency varied, systems

must follow the monthly averaging procedure in § 141.710(b)(5) or § 141.712(a)(3), as applicable, when calculating the bin classification for filtered systems or the mean *Cryptosporidium* concentration for unfiltered systems.

(f) *Reporting monitoring results for grandfathering*. Systems that request to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this paragraph. Systems serving at least 10,000 people must report this information to EPA unless the State approves reporting to the State rather than EPA. Systems serving fewer than 10,000 people must report this information to the State.

(1) Systems must report that they intend to submit previously collected monitoring results for grandfathering. This report must specify the number of previously collected results the system will submit, the dates of the first and last sample, and whether a system will conduct additional source water monitoring to meet the requirements of § 141.701(a). Systems must report this information no later than the date the sampling schedule under § 141.702 is required.

(2) Systems must report previously collected monitoring results for grandfathering, along with the associated documentation listed in paragraphs (f)(2)(i) through (iv) of this section, no later than two months after the applicable date listed in § 141.701(c).

(i) For each sample result, systems must report the applicable data elements in § 141.706.

(ii) Systems must certify that the reported monitoring results include all results the system generated during the time period beginning with the first reported result and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring under this subpart, not spiked, and analyzed using the laboratory's routine process for the analytical methods listed in this section.

(iii) Systems must certify that the samples were representative of a plant's source water(s) and the source water(s) have not changed. Systems must report a description of the sampling location(s), which must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including points of chemical addition and filter backwash recycle.

(iv) For *Cryptosporidium* samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria specified in the methods listed in paragraph (c)(1) of this section were met for each sample batch associated with the reported results. Alternatively, the laboratory may provide bench sheets and sample examination report forms for each field, matrix spike, IPR, OPR, and method blank sample associated with the reported results.

(g) If the State determines that a previously collected data set submitted for grandfathering was generated during source water conditions that were not normal for the system, such as a drought, the State may disapprove the data. Alternatively, the State may approve the previously collected data if the system reports additional source water monitoring data, as determined by the State, to ensure that the data set used under § 141.710 or § 141.712 represents average source water conditions for the system.

(h) If a system submits previously collected data that fully meet the number of samples required for initial source water monitoring under § 141.701(a) and some of the data are rejected due to not meeting the requirements of this section, systems must conduct additional monitoring to replace rejected data on a schedule the State approves. Systems are not required to begin this additional monitoring until two months after notification that data have been rejected and additional monitoring is necessary.

§ 141.708. Requirements when making a significant change in disinfection practice.

(a) Following the completion of initial source water monitoring under § 141.701(a), a system that plans to make a significant change to its disinfection practice, as defined in paragraph (b) of this section, must develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses as described in § 141.709. Prior to changing the disinfection practice, the system must notify the State and must include in this notice the information in paragraphs (a)(1) through (3) of this section.

(1) A completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses as described in § 141.709.

(2) A description of the proposed change in disinfection practice.

(3) An analysis of how the proposed change will affect the current level of disinfection.

(b) Significant changes to disinfection practice are defined as follows:

(1) Changes to the point of disinfection;

(2) Changes to the disinfectant(s) used in the treatment plant;

(3) Changes to the disinfection process; or

(4) Any other modification identified by the State as a significant change to disinfection practice.

§ 141.709. Developing the disinfection profile and benchmark.

(a) Systems required to develop disinfection profiles under § 141.708 must follow the requirements of this section. Systems must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for *Giardia lamblia* and viruses. If systems monitor more frequently, the monitoring frequency must be evenly spaced. Systems that operate for fewer than 12 months per year must monitor weekly during the period of operation. Systems must determine log inactivation for *Giardia lamblia* through the entire plant, based on CT99.9 values in Tables 1.1 through 1.6, 2.1 and 3.1 of § 141.74(b) as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the State.

(b) Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring in paragraphs (b)(1) through (4) of this section. Systems with more than one point of disinfectant application must conduct the monitoring in paragraphs (b)(1) through (4) of this section for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in § 141.74(a).

(1) For systems using a disinfectant other than UV, the temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the State.

(2) For systems using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the State.

(3) The disinfectant contact time(s) (t) must be determined during peak hourly flow.

(4) The residual disinfectant concentration(s) (C) of the water before or at the first customer and prior to each additional point of disinfectant application must be measured during peak hourly flow.

(c) In lieu of conducting new monitoring under paragraph (b) of this section, systems may elect to meet the requirements of paragraphs (c)(1) or (2) of this section.

(1) Systems that have at least one year of existing data that are substantially equivalent to data collected under the provisions of paragraph (b) of this section may use these data to develop disinfection profiles as specified in this section if the system has neither made a significant change to its treatment practice nor changed sources since the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

(2) Systems may use disinfection profile(s) developed under section 64656.5(a) in lieu of developing a new profile if the system has neither made a significant change to its treatment practice nor changed sources since the profile was developed. Systems that have not developed a virus profile under section 64656.5(a) must develop a virus profile using the same monitoring data on which the *Giardia lamblia* profile is based.

(d) Systems must calculate the total inactivation ratio for *Giardia lamblia* as specified in paragraphs (d)(1) through (3) of this section.

(1) Systems using only one point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the methods in paragraph (d)(1)(i) or (ii) of this section.

(i) Determine one inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

(ii) Determine successive $CTcalc/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. The system must calculate the total inactivation ratio by determining ($CTcalc/CT_{99.9}$) for each sequence and then adding the ($CTcalc/CT_{99.9}$) values together to determine (Σ ($CTcalc/CT_{99.9}$)).

(2) Systems using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CTcalc/CT_{99.9}$) value of each segment and (Σ ($CTcalc/CT_{99.9}$)) must be calculated using the method in paragraph (d)(1)(ii) of this section.

(3) The system must determine the total logs of inactivation by multiplying the value calculated in paragraph (d)(1) or (d)(2) of this section by 3.0.

(4) Systems must calculate the log of inactivation for viruses using a protocol approved by the State.

(e) Systems must use the procedures specified in paragraphs (e)(1) and (2) of this section to calculate a disinfection benchmark.

(1) For each year of profiling data collected and calculated under paragraphs (a) through (d) of this section, systems must determine the lowest mean monthly level of both *Giardia lamblia* and virus inactivation. Systems must determine the mean *Giardia lamblia* and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly *Giardia lamblia* and virus log inactivation by the number of values calculated for that month.

(2) The disinfection benchmark is the lowest monthly mean value (for systems with one year of profiling data) or the mean of the lowest monthly mean values (for systems with more than one year of profiling data) of *Giardia lamblia* and virus log inactivation in each year of profiling data.

§ 141.710. Bin classification for filtered systems.

(a) Following completion of the initial round of source water monitoring required under § 141.701(a), filtered systems must calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under § 141.701(a) and must follow the procedures in paragraphs (b)(1) through (5) of this section.

(b)(1) For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(2) For systems that collect a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

(3) For systems that serve fewer than 10,000 people and monitor for *Cryptosporidium* for only one year (*i.e.*, collect 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(4) For systems with plants operating only part of the year that monitor fewer than 12 months per year under § 141.701(e), the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

(5) If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in paragraphs (b)(1) through (4) of this section.

(c) Filtered systems must determine their initial bin classification from the following table and using the *Cryptosporidium* bin concentration calculated under paragraphs (a)-(b) of this section:

NOTE: This publication is meant to be an aid to the staff of the State Board's Division of Drinking Water and should not be relied upon by the regulated community as the State of California's representation of the law. The published codes are the only official representation of the law. Refer to the published codes—in this case, Titles 17, 22, and 23 of the CCR—whenever specific citations are required. Statutes related to the State Board's drinking water-related activities are in the Health & Safety Code, the Water Code, and other codes.

BIN CLASSIFICATION TABLE FOR FILTERED SYSTEMS

For systems that are:	With a ***Cryptosporidium*** bin concentration of . . . [1]	The bin classification is . . .
. . . required to monitor for *Cryptosporidium* under § 141.701.	*Cryptosporidium* <0.075 oocyst/L	Bin 1.
	0.075 oocysts/L ≤*Cryptosporidium* <1.0 oocysts/L.	Bin 2.
	1.0 oocysts/L ≤*Cryptosporidium* <3.0 oocysts/L.	Bin 3.
	Cryptosporidium ≥3.0 oocysts/L	Bin 4.
. . . serving fewer than 10,000 people and NOT required to monitor for *Cryptosporidium* under § 141.701(a)(4).	NA.....	Bin 1.

[1] Based on calculations in paragraph (a) or (d) of this section, as applicable.

(d) Following completion of the second round of source water monitoring required under § 141.701(b), filtered systems must recalculate their *Cryptosporidium* bin concentration using the *Cryptosporidium* results reported under § 141.701(b) and following the procedures in paragraphs (b)(1) through (4) of this section. Systems must then redetermine their bin classification using this bin concentration and the table in paragraph (c) of this section.

(e)(1) Filtered systems must report their initial bin classification under paragraph (c) of this section to the State for approval no later than 6 months after the system is required to complete initial source water monitoring based on the schedule in § 141.701(c).

(2) Systems must report their bin classification under paragraph (d) of this section to the State for approval no later than 6 months after the system is required to complete the second round of source water monitoring based on the schedule in § 141.701(c).

(3) The bin classification report to the State must include a summary of source water monitoring data and the calculation procedure used to determine bin classification.

(f) Failure to comply with the conditions of paragraph (e) of this section is a violation of the treatment technique requirement.

§ 141.711. Filtered system additional *Cryptosporidium* treatment requirements.

(a) Filtered systems must provide the level of additional treatment for *Cryptosporidium* specified in this paragraph based on their bin classification as determined under § 141.710 and according to the schedule in § 141.713.

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If the system bin classification is . . .	And the system uses the following filtration treatment in full compliance with Title 22, Division 4, Chapter 17, California Code of Regulations (as applicable), then the additional *Cryptosporidium* treatment requirements are . . .			
	Conventional filtration treatment (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment.
Bin 2	1-log treatment	1.5-log treatment	1-log treatment	([1])
Bin 3	2-log treatment	2.5-log treatment	2-log treatment	([2])
Bin 4	2.5-log treatment	3-log treatment	2.5-log treatment	([3])

[1] As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 4.0-log.

[2] As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 5.0-log.

[3] As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 5.5-log.

(b)(1) Filtered systems must use one or more of the treatment and management options listed in § 141.715, termed the microbial toolbox, to comply with the additional *Cryptosporidium* treatment required in paragraph (a) of this section.

(2) Systems classified in Bin 3 and Bin 4 must achieve at least 1-log of the additional *Cryptosporidium* treatment required under paragraph (a) of this section using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in §§ 141.716 through 141.720.

(c) Failure by a system in any month to achieve treatment credit by meeting criteria in §§ 141.716 through 141.720 for microbial toolbox options that is at least equal to the level of treatment required in paragraph (a) of this section is a violation of the treatment technique requirement.

(d) If the State determines during a sanitary survey or an equivalent source water assessment that after a system completed the monitoring conducted under § 141.701(a) or § 141.701(b), significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take actions specified by the State to address the contamination. These actions may include additional source water monitoring and/or implementing microbial toolbox options listed in § 141.715.

§ 141.712. Unfiltered system *Cryptosporidium* treatment requirements.

(a) Determination of mean Cryptosporidium level.

(1) Following completion of the initial source water monitoring required under § 141.701(a), unfiltered systems must calculate the arithmetic mean of all

Cryptosporidium sample concentrations reported under § 141.701(a). Systems must report this value to the State for approval no later than 6 months after the month the system is required to complete initial source water monitoring based on the schedule in § 141.701(c).

(2) Following completion of the second round of source water monitoring required under § 141.701(b), unfiltered systems must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under § 141.701(b). Systems must report this value to the State for approval no later than 6 months after the month the system is required to complete the second round of source water monitoring based on the schedule in § 141.701(c).

(3) If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the calculation of the mean *Cryptosporidium* level in paragraphs (a)(1) or (2) of this section.

(4) The report to the State of the mean *Cryptosporidium* levels calculated under paragraphs (a)(1) and (2) of this section must include a summary of the source water monitoring data used for the calculation.

(5) Failure to comply with the conditions of paragraph (a) of this section is a violation of the treatment technique requirement.

(b) *Cryptosporidium inactivation requirements*. Unfiltered systems must provide the level of inactivation for *Cryptosporidium* specified in this paragraph, based on their mean *Cryptosporidium* levels as determined under paragraph (a) of this section and according to the schedule in § 141.713.

(1) Unfiltered systems with a mean *Cryptosporidium* level of 0.01 oocysts/L or less must provide at least 2-log *Cryptosporidium* inactivation.

(2) Unfiltered systems with a mean *Cryptosporidium* level of greater than 0.01 oocysts/L must provide at least 3-log *Cryptosporidium* inactivation.

(c) *Inactivation treatment technology requirements*. Unfiltered systems must use chlorine dioxide, ozone, or UV as described in § 141.720 to meet the *Cryptosporidium* inactivation requirements of this section.

(1) Systems that use chlorine dioxide or ozone and fail to achieve the *Cryptosporidium* inactivation required in paragraph (b) of this section on more than one day in the calendar month are in violation of the treatment technique requirement.

(2) Systems that use UV light and fail to achieve the *Cryptosporidium* inactivation required in paragraph (b) of this section by meeting the criteria in § 141.720(d)(3)(ii) are in violation of the treatment technique requirement.

(d) *Use of two disinfectants*. Unfiltered systems must meet the combined *Cryptosporidium* inactivation requirements of this section and *Giardia lamblia* and virus inactivation requirements of section 64652.5(k) using a minimum of two disinfectants, and each of two disinfectants must separately achieve the total inactivation required for either *Cryptosporidium*, *Giardia lamblia*, or viruses.

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§ 141.713. Schedule for compliance with *Cryptosporidium* treatment requirements.

(a) Following initial bin classification under § 141.710(c), filtered systems must provide the level of treatment for *Cryptosporidium* required under § 141.711 according to the schedule in paragraph (c) of this section.

(b) Following initial determination of the mean *Cryptosporidium* level under § 141.712(a)(1), unfiltered systems must provide the level of treatment for *Cryptosporidium* required under § 141.712 according to the schedule in paragraph (c) of this section.

(c) Cryptosporidium treatment compliance dates.

CRYPTOSPORIDIUM TREATMENT COMPLIANCE DATES TABLE

Systems that serve . . .	Must comply with *Cryptosporidium* treatment requirements no later than . . . [a]
(1) At least 100,000 people …	(i) April 1, 2012.
(2) From 50,000 to 99,999 people.	(i) October 1, 2012.
(3) From 10,000 to 49,999 people.	(i) October 1, 2013.
(4) Fewer than 10,000 people	(i) October 1, 2014.

[a] States may allow up to an additional two years for complying with the treatment requirement for systems making capital improvements.

(d) If the bin classification for a filtered system changes following the second round of source water monitoring, as determined under § 141.710(d), the system must provide the level of treatment for *Cryptosporidium* required under § 141.711 on a schedule the State approves.

(e) If the mean *Cryptosporidium* level for an unfiltered system changes following the second round of monitoring, as determined under § 141.712(a)(2), and if the system must provide a different level of *Cryptosporidium* treatment under § 141.712 due to this change, the system must meet this treatment requirement on a schedule the State approves.

§ 141.714. Requirements for uncovered finished water storage facilities.

(a) Systems using uncovered finished water storage facilities must comply with the conditions of this section.

(b) Systems must notify the State of the use of each uncovered finished water storage facility no later than April 1, 2008.

(c) Systems must meet the conditions of paragraph (c)(1) or (2) of this section for each uncovered finished water storage facility or be in compliance with a State-approved schedule to meet these conditions no later than April 1, 2009.

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(1) Systems must cover any uncovered finished water storage facility.

(2) Systems must treat the discharge from the uncovered finished water storage facility to the distribution system to achieve inactivation and/or removal of at least 4-log virus, 3-log *Giardia lamblia*, and 2-log *Cryptosporidium* using a protocol approved by the State.

(d) Failure to comply with the requirements of this section is a violation of the treatment technique requirement.

§ 141.715. Microbial toolbox options for meeting *Cryptosporidium* treatment requirements.

(a)(1) Systems receive the treatment credits listed in the table in paragraph (b) of this section by meeting the conditions for microbial toolbox options described in §§ 141.716 through 141.720. Systems apply these treatment credits to meet the treatment requirements in § 141.711 or § 141.712, as applicable.

(2) Unfiltered systems are eligible for treatment credits for the microbial toolbox options described in § 141.720 only.

(b) The following table summarizes options in the microbial toolbox:

MICROBIAL TOOLBOX SUMMARY TABLE: OPTIONS, TREATMENT CREDITS AND CRITERIA

Toolbox Option	*Cryptosporidium* treatment credit with design and implementation criteria
Source Protection and Management Toolbox Options	
(1) Watershed control program.....	0.5-log credit for State-approved program comprising required elements, annual program status report to State, and regular watershed survey. Unfiltered systems are not eligible for credit. Specific criteria are in § 141.716(a).
(2) Alternative source/intake management	No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are in § 141.716(b).
Pre Filtration Toolbox Options	
(3) Presedimentation basin with coagulation	0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative State-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through basins. Specific criteria are in § 141.717(a).
(4) Two-stage lime softening	0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are in § 141.717(b).
(5) Bank filtration	0.5-log credit for 25-foot setback; 1.0-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent

	fines; average turbidity in wells must be less than 1 NTU. Systems using wells followed by filtration when conducting source water monitoring must sample the well to determine bin classification and are not eligible for additional credit. Specific criteria are in § 141.717(c).
Treatment Performance Toolbox Options	
(6) Combined filter performance.....	0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are in § 141.718(a).
(7) Individual filter performance.....	0.5-log credit (in addition to 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter. Specific criteria are in § 141.718(b).
(8) Demonstration of performance.....	Credit awarded to unit process or treatment train based on a demonstration to the State with a State- approved protocol. Specific criteria are in § 141.718(c).
Additional Filtration Toolbox Options	
(9) Bag or cartridge filters (individual filters).....	Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are in § 141.719(a).
(10) Bag or cartridge filters (in series).....	Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. Specific criteria are in § 141.719(a).
(11) Membrane filtration	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are in § 141.719(b).
(12) Second stage filtration	0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are in § 141.719(c)
(13) Slow sand filters.	2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are in § 141.719(d).
Inactivation Toolbox Options	
(14) Chlorine dioxide .	Log credit based on measured CT in relation to CT table. Specific criteria in § 141.720(b)
(15) Ozone	Log credit based on measured CT in relation to CT table. Specific criteria in § 141.720(b).

(16) UV.....	Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria in § 141.720(d).

§ 141.716. Source toolbox components.

(a) *Watershed control program*. Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a watershed control program that meets the requirements of this section.

(1) Systems that intend to apply for the watershed control program credit must notify the State of this intent no later than two years prior to the treatment compliance date applicable to the system in § 141.713.

(2) Systems must submit to the State a proposed watershed control plan no later than one year before the applicable treatment compliance date in § 141.713. The State must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the elements in paragraphs (a)(2)(i) through (iv) of this section.

(i) Identification of an "area of influence" outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under paragraph (a)(5)(ii) of this section.

(ii) Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.

(iii) An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.

(iv) A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(3) Systems with existing watershed control programs (*i.e.*, programs in place on January 5, 2006) are eligible to seek this credit. Their watershed control plans must meet the criteria in paragraph (a)(2) of this section and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.

(4) If the State does not respond to a system regarding approval of a watershed control plan submitted under this section and the system meets the other requirements of this section, the watershed control program will be considered approved and 0.5 log *Cryptosporidium* treatment credit will be awarded unless and until the State subsequently withdraws such approval.

(5) Systems must complete the actions in paragraphs (a)(5)(i) through (iii) of this section to maintain the 0.5-log credit.

(i) Submit an annual watershed control program status report to the State. The annual watershed control program status report must describe the system's

implementation of the approved plan and assess the adequacy of the plan to meet its goals. It must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the State or as the result of the watershed survey conducted under paragraph (a)(5)(ii) of this section. It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the State prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.

(ii) Undergo a watershed sanitary survey every three years for community water systems and every five years for noncommunity water systems and submit the survey report to the State. The survey must be conducted according to State guidelines and by persons the State approves.

(A) The watershed sanitary survey must meet the following criteria: encompass the region identified in the State-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium*.

(B) If the State determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by a date the State requires, which may be earlier than the regular date in paragraph (a)(5)(ii) of this section.

(iii) The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The State may approve systems to withhold from the public portions of the annual status report, watershed control plan, and watershed sanitary survey based on water supply security considerations.

(6) If the State determines that a system is not carrying out the approved watershed control plan, the State may withdraw the watershed control program treatment credit.

(b) Alternative source.

(1) A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the State approves, a system may determine its bin classification under § 141.710 based on the alternative source monitoring results.

(2) If systems conduct alternative source monitoring under paragraph (b)(1) of this section, systems must also monitor their current plant intake concurrently as described in § 141.701.

(3) Alternative source monitoring under paragraph (b)(1) of this section must meet the requirements for source monitoring to determine bin classification, as described in §§ 141.701 through 141.706. Systems must report the alternative source monitoring results to the State, along with supporting information documenting the operating conditions under which the samples were collected.

(4) If a system determines its bin classification under § 141.710 using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in § 141.713.

§ 141.717. Pre-filtration treatment toolbox components.

(a) *Presedimentation*. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.

(1) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDI source.

(2) The system must continuously add a coagulant to the presedimentation basin.

(3) The presedimentation basin must achieve the performance criteria in paragraph (3)(i) or (ii) of this section.

(i) Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: $\log_{10}$(monthly mean of daily influent turbidity) − $\log_{10}$(monthly mean of daily effluent turbidity).

(ii) Complies with State-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

(b) *Two-stage lime softening*. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDI source.

(c) *Bank filtration*. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under § 141.701(a) must collect samples as described in § 141.703(d) and are not eligible for this credit.

(1) Wells with a ground water flow path of at least 25 feet receive 0.5-log treatment credit; wells with a ground water flow path of at least 50 feet receive 1.0-log treatment credit. The ground water flow path must be determined as specified in paragraph (c)(4) of this section.

(2) Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(3) Only horizontal and vertical wells are eligible for treatment credit.

(4) For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year

floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(5) Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the State and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the State determines that microbial removal has been compromised, the State may revoke treatment credit until the system implements corrective actions approved by the State to remediate the problem.

(6) Springs and infiltration galleries are not eligible for treatment credit under this section, but are eligible for credit under § 141.718(c).

(7) *Bank filtration demonstration of performance*. The State may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraphs (c)(1)–(5) of this section.

(i) The study must follow a State-approved protocol and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.

(ii) The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

§ 141.718. Treatment performance toolbox components.

(a) *Combined filter performance.* Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in § 141.74(a) and (c).

(b) *Individual filter performance*. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit, which can be in addition to the 0.5-log credit under paragraph (a) of this section, during any month the system meets the criteria in this paragraph. Compliance with these criteria must be based on individual filter turbidity monitoring as described in sections 64655 and 64661, as applicable.

(1) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(2) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

(3) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraph (b)(1) or (2) of this section during any month

does not receive a treatment technique violation under § 141.711(c) if the State determines the following:

(i) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance.

(ii) The system has experienced no more than two such failures in any calendar year.

(c) *Demonstration of performance*. The State may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in § 141.711 or §§ 141.717 through 141.720 and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(1) Systems cannot receive the prescribed treatment credit for any toolbox box option in §§ 141.717 through 141.720 if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(2) The demonstration of performance study must follow a State-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.

(3) Approval by the State must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The State may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

§ 141.719. Additional filtration toolbox components.

(a) *Bag and cartridge filters*. Systems receive *Cryptosporidium* treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the criteria in paragraphs (a)(1) through (10) of this section. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of paragraphs (a)(2) through (9) of this section to the State. The filters must treat the entire plant flow taken from a Title 22, Division 4, Chapter 17, California Code of Regulations source.

(1) The *Cryptosporidium* treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria in paragraphs (a)(2) through (a)(9) of this section. A factor of safety equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. Systems may use results from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria specified in paragraphs (a)(2) through (9) of this section.

(2) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same

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configuration that the system will use, either as individual filters or as a series configuration of filters.

(3) Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity may not be used.

(4) The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (*i.e.*, filtrate detection limit) and must be calculated using the following equation:

$$\text{Maximum Feed Concentration} = 1 \times 10^4 \times (\text{Filtrate Detection Limit})$$

(5) Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(6) Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this subpart.

(7) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:

LRV = log removal value demonstrated during challenge testing; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit.

(8) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

(9) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(10) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the State.

(b) *Membrane filtration*. (1) Systems receive *Cryptosporidium* treatment credit for membrane filtration that meets the criteria of this paragraph. Membrane cartridge filters that meet the definition of membrane filtration in section 64651.54 are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under paragraph (b)(1)(i) and (ii) of this section.

(i) The removal efficiency demonstrated during challenge testing conducted under the conditions in paragraph (b)(2) of this section.

(ii) The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in paragraph (b)(3) of this section.

(2) *Challenge testing*. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the State. Challenge testing must be conducted according to the criteria in paragraphs (b)(2)(i) through (vii) of this section. Systems may use data from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria in paragraphs (b)(2)(i) through (vii) of this section.

(i) Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(ii) Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.

(iii) The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

$$\text{Maximum Feed Concentration} = 3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$$

(iv) Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (*i.e.*, backwashing).

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(v) Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:

LRV = log removal value demonstrated during the challenge test; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

(vi) The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the 10th percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(vii) The challenge test must establish a quality control release value (QCRV) for a non-destructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. This performance test must be applied to each production membrane module used by the system that was not directly challenge tested in order to verify *Cryptosporidium* removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

(viii) If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the State.

(3) Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process and meets the requirements described in paragraphs (b)(3)(i) through (vi) of this section. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (*i.e.*, one or more leaks that could result in contamination of the filtrate).

(i) The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

(ii) The direct integrity method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

(iii) The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the State, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either paragraph (b)(3)(iii)(A) or (B) of this section as applicable to the type of direct integrity test the system uses.

(A) For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10} (Q_p /(VCF \times Q_{breach}))$$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test; Q_p = total design filtrate flow from the membrane unit; Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured, and VCF = volumetric concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.

(B) For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test; C_f = the typical feed concentration of the marker used in the test; and C_p = the filtrate concentration of the marker from an integral membrane unit.

(iv) Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the State.

(v) If the result of a direct integrity test exceeds the control limit established under paragraph (b)(3)(iv) of this section, the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the established control limit.

(vi) Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The State may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.

(4) *Indirect integrity monitoring*. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in paragraphs (b)(4)(i) through (v) of this section. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A

system that implements continuous direct integrity testing of membrane units in accordance with the criteria in paragraphs (b)(3)(i) through (v) of this section is not subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the State summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

(i) Unless the State approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

(ii) Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.

(iii) Continuous monitoring must be separately conducted on each membrane unit.

(iv) If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (*i.e.*, two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in paragraphs (b)(3)(i) through (v) of this section.

(v) If indirect integrity monitoring includes a State-approved alternative parameter and if the alternative parameter exceeds a State-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units as specified in paragraphs (b)(3)(i) through (v) of this section.

(c) *Second stage filtration*. Systems receive 0.5-log *Cryptosporidium* treatment credit for a separate second stage of filtration that consists of sand, dual media, GAC, or other fine grain media following granular media filtration if the State approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or GWUDI source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The State must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

(d) *Slow sand filtration (as secondary filter)*. Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or GWUDI source and no disinfectant residual is present in the influent water to the slow sand filtration process. The State must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This paragraph does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.

§ 141.720. Inactivation toolbox components.

(a) *Calculation of CT values*. (1) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under paragraph (b) or (c) of this section must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in §§ 141.74(a) through (b).

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(2) Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems must add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.

(b) *CT values for chlorine dioxide and ozone*. (1) Systems receive the *Cryptosporidium* treatment credit listed in this table by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in paragraph (a) of this section.

CT VALUES (MG·MIN/L) FOR *CRYPTOSPORIDIUM* INACTIVATION BY CHLORINE DIOXIDE [1]

Log credit	Water Temperature, °C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
(i) 0.25	159	153	140	128	107	90	69	45	29	19	12
(ii) 0.5	319	305	279	256	214	180	138	89	58	38	24
(iii) 1.0	637	610	558	511	429	360	277	179	116	75	49
(iv) 1.5	956	915	838	767	643	539	415	268	174	113	73
(v) 2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
(vi) 2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
(vii) 3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

[1] Systems may use this equation to determine log credit between the indicated values: Log credit = $(0.001506 \times (1.09116)^{Temp}) \times CT$.

(2) Systems receive the *Cryptosporidium* treatment credit listed in this table by meeting the corresponding ozone CT values for the applicable water temperature, as described in paragraph (a) of this section.

CT VALUES (MG·MIN/L) FOR *CRYPTOSPORIDIUM* INACTIVATION BY OZONE [1]

Log credit	Water Temperature, °C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
(i) 0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
(ii) 0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
(iii) 1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
(iv) 1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
(v) 2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
(vi) 2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9

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(vii) 3.0.....	72	69	63	57	47	39	30	19	12	7.4	4.7

[1] Systems may use this equation to determine log credit between the indicated values: Log credit = $(0.0397 \times (1.09757)^{Temp}) \times CT$.

(c) *Site-specific study*. The State may approve alternative chlorine dioxide or ozone CT values to those listed in paragraph (b) of this section on a site-specific basis. The State must base this approval on a site-specific study a system conducts that follows a State-approved protocol.

(d) *Ultraviolet light*. Systems receive *Cryptosporidium*, *Giardia lamblia*, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in paragraph (d)(1) of this section. Systems must validate and monitor UV reactors as described in paragraphs (d)(2) and (3) of this section to demonstrate that they are achieving a particular UV dose value for treatment credit.

(1) UV dose table. The treatment credits listed in this table are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing, as described in paragraph (d)(2) of this section. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems and to unfiltered systems.

UV DOSE TABLE FOR *Cryptosporidium*, *Giardia Lamblia*, AND VIRUS INACTIVATION CREDIT

Log credit	*Cryptosporidium* UV dose (mJ/cm^2)	*Giardia lamblia* UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
(i) 0.5	1.6	1.5	39
(ii) 1.0	2.5	2.1	58
(iii) 1.5.....	3.9	3.0	79
(iv) 2.0	5.8	5.2	100
(v) 2.5	8.5	7.7	121
(vi) 3.0	12	11	143
(vii) 3.5.....	15	15	163
(viii) 4.0.....	22	22	186

(2) *Reactor validation testing*. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in paragraph (d)(1) of this section (*i.e.*, validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

(i) When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement

uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

(ii) Validation testing must include the following: Full scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.

(iii) The State may approve an alternative approach to validation testing.

(3) Reactor monitoring.

(i) Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under paragraph (d)(2) of this section. This monitoring must include UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters the State designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol the State approves.

(ii) To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in paragraphs (d)(1) and (2) of this section. Systems must demonstrate compliance with this condition by the monitoring required under paragraph (d)(3)(i) of this section.

§ 141.721. Reporting requirements.

(a) Systems must report sampling schedules under § 141.702 and source water monitoring results under § 141.706 unless they notify the State that they will not conduct source water monitoring due to meeting the criteria of § 141.701(d).

(b) Systems must report the use of uncovered finished water storage facilities to the State as described in § 141.714.

(c) Filtered systems must report their *Cryptosporidium* bin classification as described in § 141.710.

(d) Unfiltered systems must report their mean source water *Cryptosporidium* level as described in § 141.712.

(e) Systems must report disinfection profiles and benchmarks to the State as described in §§ 141.708 through 141.709 prior to making a significant change in disinfection practice.

(f) Systems must report to the State in accordance with the following table for any microbial toolbox options used to comply with treatment requirements under § 141.711 or § 141.712. Alternatively, the State may approve a system to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.

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MICROBIAL TOOLBOX REPORTING REQUIREMENTS

Toolbox option	Systems must submit the following information	On the following schedule
(1) Watershed control program (WCP).	(i) Notice of intention to develop a new or continue an existing watershed control program	No later than two years before the applicable treatment compliance date in § 141.713
	(ii) Watershed control plan	No later than one year before the applicable treatment compliance date in § 141.713.
	(iii) Annual watershed control program status report	Every 12 months, beginning one year after the applicable treatment compliance date in § 141.713.
	(iv) Watershed sanitary survey report	For community water systems, every three years beginning three years after the applicable treatment compliance date in § 141.713. For noncommunity water systems, every five years beginning five years after the applicable treatment compliance date in § 141.713.
(2) Alternative source/intake management.	Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results	No later than the applicable treatment compliance date in § 141.713.
(3) Presedimentation	Monthly verification of the following: (i) Continuous basin operation (ii) Treatment of 100% of the flow (iii) Continuous addition of a coagulant (iv) At least 0.5-log mean reduction of influent turbidity or compliance with alternative State-approved performance criteria	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(4) Two-stage lime softening	Monthly verification of the following: (i) Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration (ii) Both stages treated 100% of the plant flow	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.

(5) Bank filtration..	(i) Initial demonstration of the following: (A) Unconsolidated, predominantly sandy aquifer (B) Setback distance of at least 25 ft. (0.5-log credit) or 50 ft. (1.0-log credit)	No later than the applicable treatment compliance date in § 141.713.
	(ii) If monthly average of daily max turbidity is greater than 1 NTU then system must report result and submit an assessment of the cause.	Report within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(6) Combined filter performance	Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4 hour CFE measurements taken each month	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(7) Individual filter performance	Monthly verification of the following: (i) Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter (ii) No individual filter greater than 0.3 NTU in two consecutive readings 15 minutes apart	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.]
(8) Demonstration of performance	(i) Results from testing following a State approved protocol (ii) As required by the State, monthly verification of operation within conditions of State approval for demonstration of performance credit	No later than the applicable treatment compliance date in § 141.713. Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(9) Bag filters and cartridge filters	(i) Demonstration that the following criteria are met: (A) Process meets the definition of bag or cartridge filtration; (B) Removal efficiency established through challenge testing that meets criteria in this subpart	No later than the applicable treatment compliance date in § 141.713.
	(ii) Monthly verification that 100% of plant flow was filtered	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.

(10) Membrane filtration.....	(i) Results of verification testing demonstrating the following: (A) Removal efficiency established through challenge testing that meets criteria in this subpart; (B) Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline	No later than the applicable treatment compliance date in § 141.713.
	(ii) Monthly report summarizing the following: (A) All direct integrity tests above the control limit; (B) If applicable, any turbidity or alternative state-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(11) Second stage filtration.....	Monthly verification that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(12) Slow sand filtration (as secondary filter).	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow from subpart H sources.	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(13) Chlorine dioxide	Summary of CT values for each day as described in § 141.720.	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(14) Ozone.....	Summary of CT values for each day as described in § 141.720.	Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.
(15) UV	(i) Validation test results demonstrating operating conditions that achieve required UV dose (ii) Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the	No later than the applicable treatment compliance date in § 141.713. Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 141.713.

	required dose as specified in 141.720(d).	

§ 141.722. Recordkeeping requirements.

(a) Systems must keep results from the initial round of source water monitoring under § 141.701(a) and the second round of source water monitoring under § 141.701(b) until 3 years after bin classification under § 141.710 for filtered systems or determination of the mean *Cryptosporidium* level under § 141.710 for unfiltered systems for the particular round of monitoring.

(b) Systems must keep any notification to the State that they will not conduct source water monitoring due to meeting the criteria of § 141.701(d) for 3 years.

(c) Systems must keep the results of treatment monitoring associated with microbial toolbox options under §§ 141.716 through 141.720 and with uncovered finished water reservoirs under § 141.714, as applicable, for 3 years.

§ 141.723. Requirements to respond to significant deficiencies identified in sanitary surveys performed by EPA.

(a) A sanitary survey is an onsite review of the water source (identifying sources of contamination by using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS to evaluate the adequacy of the PWS, its sources and operations, and the distribution of safe drinking water.

(b) For the purposes of this section, a significant deficiency includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that EPA determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

(c) For sanitary surveys performed by EPA, systems must respond in writing to significant deficiencies identified in sanitary survey reports no later than 45 days after receipt of the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey.

(d) Systems must correct significant deficiencies identified in sanitary survey reports according to the schedule approved by EPA, or if there is no approved schedule, according to the schedule reported under paragraph (c) of this section if such deficiencies are within the control of the system.