

**Description of Method for Indicating Changes to SBDDW-16-02,  
the Proposed Regulations for Surface Water Augmentation  
Using Recycled Water**

Changes made to the proposed regulations SBDDW-16-02 are indicated as follows:

- Additional regulation text is indicated by a double underline (double underline).
- Deleted regulation text is indicated by a double strikethrough (~~double strikethrough~~).

## TITLE 22, CALIFORNIA CODE OF REGULATIONS

### DIVISION 4, CHAPTER 3

#### ARTICLE 1. Definitions

#### Adopt Section 60301.120 as follows:

##### **§60301.120. Augmented Reservoir.**

"Augmented Reservoir" means a surface water reservoir used as a source of domestic drinking water supply that receives recycled municipal wastewater from a Surface Water Source Augmentation Project (SWSAP).

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

#### Amend Section 60301.450 as follows:

##### **§60301.450. Indicator Compound.**

"Indicator Compound" means an individual chemical in a ~~GRRP's~~ municipal wastewater that represents the physical, chemical, and biodegradable characteristics of a specific family of trace organic chemicals; is present in concentrations that provide information relative to the environmental fate and transport of those chemicals; may be used to monitor the efficiency of trace organic compounds removal by treatment processes; and provides an indication of treatment process failure.

NOTE: Authority cited: Sections 13521, 13562 and 13562.5, Water Code; and Sections ~~131052 and 131200~~ 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561 and 13562.5, Water Code.

**Adopt Section 60301.850.5 as follows:**

**§60301.850.5. Surface Water.**

As used in this Article and Article 5.3 of this Chapter, "Surface Water" has the same meaning as defined in section 64651.83 of Chapter 17.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60301.851 as follows:**

**§60301.851. Surface Water Source Augmentation Project or SWSAP.**

"Surface Water Source Augmentation Project" or "SWSAP" means a project involving the planned placement of recycled municipal wastewater into a surface water reservoir that is used as a source of domestic drinking water supply, for the purpose of supplementing the source of domestic drinking water supply.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60301.852 as follows:**

**§60301.852. Surface Water Source Augmentation Project Public Water System or SWSAP PWS.**

"Surface Water Source Augmentation Project Public Water System" or "SWSAP PWS" means a public water system that plans to utilize or is utilizing an augmented reservoir as a source of drinking water and is responsible for complying with the requirements of Chapter 17 and the applicable requirements of this Chapter.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60301.853 as follows:**

**§60301.853. Surface Water Source Augmentation Project Water Recycling**

**Agency or SWSAP WRA.**

"Surface Water Source Augmentation Project Water Recycling Agency" or "SWSAP WRA" means an agency that is subject to a Regional Water Quality Control Board's (Regional Board's) water-recycling requirements applicable to a Surface Water Source Augmentation Project (SWSAP) and is, in whole or part, responsible for applying to the Regional Board for a permit, obtaining a permit, the operation of a SWSAP, and complying with the terms and conditions of the Regional Board permit and the requirements of this Chapter.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

### **ARTICLE 5.3. Indirect Potable Reuse: Surface Water Augmentation**

#### **Adopt Section 64320.300 as follows:**

##### **Section 64320.300. Application.**

The requirements of this Article apply to a Surface Water Source Augmentation Project Water Recycling Agency (SWSAP WRA) involved in the planned placement of recycled municipal wastewater into a surface water reservoir that is used, in whole or in part, as a source of domestic drinking water supply by a public water system pursuant to Article 9, Chapter 17, of this Division.

#### **Adopt Section 60320.301 as follows:**

##### **§60320.301. General Requirements.**

(a) Prior to augmentation of a surface water reservoir using a SWSAP, each SWSAP WRA and each SWSAP PWS participating in the SWSAP shall submit a joint plan to the State Board and Regional Board for review and written approval. At a minimum, the joint plan shall address the elements in paragraphs (1) and (2) below. The joint plan shall be signed by each person with authority or responsibility to operate the SWSAP, comply with the requirements of this Article, and ensure that each SWAP WRA and SWAP PWS implements the actions designated in the joint plan. In the event of any subsequent change in applicable authority, responsibility, operation, or ownership of a SWSAP WRA or SWSAP PWS, including the addition of any SWSAP WRA or SWSAP PWS participant in the SWSAP, a revised joint plan shall be submitted to the State Board and Regional Board for review and written approval, and the revised joint plan shall be signed by all participants. A revised joint plan shall also be submitted to reflect any change in the information provided pursuant to paragraphs (1) and (2) below, and to address any State Board or Regional Board concerns. A revised joint plan required by this section shall be submitted not less than sixty (60) days prior to the effective date of any change required by this section to be addressed in a revised joint plan.

(1) Corrective actions to be taken in the event that a delivery of recycled municipal wastewater from the SWSAP to an augmented reservoir fails to meet the water quality requirements of this Article.

(2) The procedures a SWSAP WRA will implement for notifying a SWSAP PWS, State Board, and Regional Board of:

(A) operational changes that may adversely affect the quality of the recycled municipal wastewater to be delivered to an augmented reservoir, and

(B) the events and corresponding corrective actions required to be identified in paragraph (1).

(b) Prior to design and operation of a SWSAP, a SWSAP WRA shall demonstrate to the State Board and Regional Board that the SWSAP WRA possesses adequate financial, managerial, and technical capability to assure compliance with this Article.

(c) Prior to augmentation of a surface water reservoir using a SWSAP, a SWSAP WRA shall demonstrate to the State Board and Regional Board that all treatment processes are installed and can be operated by the SWSAP WRA, as designed, to achieve their intended function. A protocol describing the actions to be taken to meet this subsection shall be included in the engineering report submitted pursuant to section 60323, Article 7 of Chapter 3.

(d) If a SWSAP WRA fails to complete compliance monitoring required by this Article, compliance may be determined by the State Board or Regional Board based on available monitoring data available to, and assumptions made by, the State Board or Regional Board.

(e) A SWSAP WRA shall ensure that the recycled municipal wastewater used for a SWSAP is from a wastewater management agency that is not in violation of the effluent limits or water quality requirements that pertain to surface water augmentation pursuant to this Article, as incorporated in the wastewater management agency's Regional Board permit.

(f) When a SWSAP WRA has been required by this Article or directed by the State Board or Regional Board to suspend augmentation of a surface water reservoir for any reason, augmentation of the surface water reservoir shall not resume until the SWSAP WRA has obtained written authorization to resume augmentation of the reservoir from the State Board and Regional Board.

(g) Reports required by this Article to be submitted by a SWSAP WRA or SWSAP PWS to the Regional Board or State Board shall be in writing.

(h) Unless specified otherwise, the term “quarter”, as used in this Article, refers to a calendar quarter.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.302 as follows:**

**§60320.302. Advanced Treatment Criteria.**

A SWSAP WRA shall ensure the continuous treatment, with full advanced treatment meeting the criteria in this section, of the entire recycled municipal wastewater stream prior to its delivery to an augmented reservoir. Full advanced treatment is the treatment of an oxidized wastewater, as defined in section 60301.650, using a reverse osmosis and an oxidation treatment process that, at a minimum, meets the criteria of this section.

(a) A SWSAP WRA shall select for use a reverse osmosis membrane such that:  
(1) each membrane element used in the SWSAP has achieved a minimum rejection of sodium chloride of no less than 99.0 percent (99.0%) and an average (nominal) rejection of sodium chloride of no less than 99.2 percent (99.2%), as

demonstrated through Method A of ASTM International's method D4194-03 (2014) using the following substitute test conditions:

(A) a recovery of permeate of no less than 15 percent (15%);

(B) sodium chloride rejection is based on three or more successive measurements, after flushing and following at least 30 minutes of operation having demonstrated that rejection has stabilized;

(C) an influent pH no less than 6.5 and no greater than 8.0;

(D) an influent sodium chloride concentration of no greater than 2,000 mg/L, to be verified prior to the start of testing; and

(E) an applied pressure no greater than 225 pounds per square inch (psi);

and

(2) during the first twenty weeks of full-scale operation the membrane produces a permeate with no more than five percent (5%) of the sample results having TOC concentrations greater than 0.25 mg/L (or an alternative surrogate parameter and corresponding limit approved by the State Board), as verified through monitoring no less frequent than weekly.

(b) For the reverse osmosis treatment process, a SWSAP WRA shall propose, for State Board review and written approval, on-going performance monitoring (e.g., conductivity, TOC, etc.) that indicates when the integrity of the process has been compromised. The proposal shall include at least one form of continuous monitoring, as well as the associated surrogate and/or operational parameter limits and alarm settings that indicate when the integrity has been compromised.

(c) To demonstrate a sufficient oxidation treatment process has been designed for implementation, the SWSAP WRA shall conduct testing demonstrating that an oxidation treatment process will provide no less than 0.5-log<sub>10</sub> (69 percent) reduction of 1,4-dioxane.

(1) A SWSAP WRA shall submit a testing protocol, as well as the subsequent results, to the State Board for review and written approval. The testing shall include challenge or spiking tests, using 1,4-dioxane, to demonstrate the proposed oxidation



treatment process will achieve the minimum 0.5-log<sub>10</sub> reduction under the proposed oxidation treatment process's normal full-scale operating conditions.

(2) A SWSAP WRA shall establish, and submit to the State Board for review and written approval, surrogate and/or operational parameters that indicate whether the minimum 0.5-log<sub>10</sub> 1,4-dioxane reduction design criterion is being met. At least one surrogate or operational parameter shall be capable of being monitored continuously, recorded, and have associated alarms that indicate when the process is not operating as designed.

(d) During full-scale operation of the oxidation treatment process designed pursuant to subsection (c), a SWSAP WRA shall continuously monitor the surrogate and/or operational parameters established pursuant to subsection (c)(2). A SWSAP WRA shall implement, in full-scale operation, the oxidation treatment process as designed pursuant to subsection (c).

(e) Within sixty (60) days after completing the first 12-months of full-scale operational monitoring pursuant to subsection (d), a SWSAP WRA shall submit a report to the State Board and Regional Board that includes:

(1) results of surrogate and/or operational parameter monitoring conducted pursuant to subsection (d);

(2) a description of the efficacy of the surrogate and/or operational parameters to reflect the reduction criterion for 1,4-dioxane; and

(3) a description of actions taken, or yet to be taken, if any of the following occurred during the first 12 months of operation:

(A) the 1,4-dioxane reduction did not meet the associated design criteria in subsection (c), as indicated by the on-going continuous operational surrogate and/or operational parameter monitoring;

(B) if 1,4-dioxane was present, the continuous surrogate and/or operational parameter monitoring failed to correspond to the reduction criterion for 1,4-dioxane; and

(C) any failure, interruption, or other incident that may have resulted in insufficient oxidation treatment having occurred.

(f) Within sixty (60) days after completing the initial 12 months of operation of the reverse osmosis process (or alternative process approved pursuant to 60320.330), a SWSAP WRA shall submit a report to the State Board and Regional Board describing the effectiveness of the treatment, process failures that occurred, and actions taken in the event the on-going monitoring, conducted pursuant to subsection (b), indicated that process integrity was compromised.

(g) Each quarter, a SWSAP WRA shall calculate what percent of results of the quarter's monitoring, conducted pursuant to subsections (b) and (d), did not meet the surrogate and/or operational parameter limits established to assure proper on-going performance of the reverse osmosis and oxidation processes. If the percent is greater than ten, within forty-five (45) days after the end of the quarter a SWSAP WRA shall:

(1) submit a report to the State Board and Regional Board that identifies the reason(s) for the failure, if known, and describes the corrective actions planned or taken to reduce the percent to ten percent (10%) or less; and

(2) consult with the State Board and Regional Board and, if directed by the State Board or Regional Board, comply with an alternative monitoring plan approved by the State Board and Regional Board.

(h) Each month a SWSAP WRA shall collect samples representative of the effluent of the advanced treatment process under normal operating conditions and have the samples analyzed for contaminants having MCLs and notification levels (NLs). After 12 consecutive months with no results exceeding an MCL or NL, a SWSAP WRA may apply to the State Board and Regional Board for a reduced monitoring frequency. The reduced monitoring frequency for a contaminant with an MCL shall be no less than quarterly. With State Board and Regional Board approval, monitoring conducted pursuant to this subsection may be used in lieu of the monitoring (for the same contaminants) required pursuant to sections 60320.312 and 60320.320. ~~The effluent of the advanced treatment process may not exceed an MCL.~~ If an MCL or NL is exceeded, the SWSAP WRA shall take the follow-up actions for MCL and NL

exceedances required pursuant to section 60320.312 and section 60320.320(b), respectively.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.304 as follows:**

**§60320.304. Lab Analyses.**

(a) An analysis for a contaminant having a primary or secondary MCL shall be performed using a drinking water method approved by the State Board for the contaminant, by a laboratory that at the time of the analysis has a valid certificate from the State Board for the analytical method used.

(b) Analyses for chemicals other than those having primary or secondary MCLs shall be described in the SWSAP WRA's Operation Plan prepared pursuant to section 60320.322.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.306 as follows:**

**§60320.306. Wastewater Source Control.**

A SWSAP WRA shall ensure that the recycled municipal wastewater used for a SWSAP shall be from a wastewater management agency that:

(a) administers an industrial pretreatment and pollutant source control program; and

(b) implements and maintains a source control program that includes, at a minimum;

(1) an assessment of the fate of State Board-specified and Regional Board-specified chemicals and contaminants through the wastewater and recycled municipal wastewater treatment systems,

(2) chemical and contaminant source investigations and monitoring that focuses on State Board-specified and Regional Board-specified chemicals and contaminants,

(3) an outreach program to industrial, commercial, and residential communities within the portions of the sewage collection agency's service area that flows into the water reclamation plant subsequently supplying the SWSAP, for the purpose of managing and minimizing the discharge of chemicals and contaminants at the source, and

(4) a current inventory of chemicals and contaminants identified and evaluated pursuant to this section, including new chemicals and contaminants resulting from new sources or changes to existing sources, that may be discharged into the wastewater collection system.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.308 as follows:**

**§60320.308. Pathogenic Microorganism Control.**

(a) A SWSAP WRA shall design and operate SWSAP treatment processes such that the recycled municipal wastewater delivered to an augmented reservoir for use by a SWSAP PWS receives treatment as follows:

(1) For a SWSAP PWS implementing the requirements of section 64668.30(c)(1) of Chapter 17, the treatment train shall reliably achieve at least 8-log<sub>10</sub> enteric virus reduction, 7-log<sub>10</sub> *Giardia* cyst reduction, and 8-log<sub>10</sub> *Cryptosporidium* oocyst reduction, consisting of at least two separate treatment processes for each pathogen (i.e., enteric

virus, *Giardia* cyst, or *Cryptosporidium* oocyst). A separate treatment process may be credited with no more than 6-log<sub>10</sub> reduction, with at least two processes each being credited with no less than 1.0-log<sub>10</sub> reduction. A single treatment process may receive log<sub>10</sub> reduction credits for one or more pathogens.

(2) For a SWSAP PWS implementing the requirements of section 64668.30(c)(2) of Chapter 17, the treatment train shall reliably achieve at least 9-log<sub>10</sub> enteric virus reduction, 8-log<sub>10</sub> *Giardia* cyst reduction, and 9-log<sub>10</sub> *Cryptosporidium* oocyst reduction, consisting of at least three separate treatment processes for each pathogen (i.e., enteric virus, *Giardia* cyst, or *Cryptosporidium* oocyst). A separate treatment process may be credited with no more than 6-log<sub>10</sub> reduction, with at least three processes each being credited with no less than 1.0-log<sub>10</sub> reduction. A single treatment process may receive log<sub>10</sub> reduction credits for one or more pathogens.

(3) The State Board may increase the minimum enteric virus, *Giardia* cyst, and *Cryptosporidium* oocyst log<sub>10</sub> reductions required in paragraphs (1) and (2) as a result of a SWSAP PWS relying on additional treatment to obtain State Board approval of an alternative minimum theoretical retention time pursuant section 64668.30(b) of Chapter 17.

(b) The SWSAP WRA shall validate each of the treatment processes used to meet the requirements in subsection (a) for their log reduction by submitting a report for the State Board's review and written approval, or by using a challenge test approved by the State Board, that provides evidence of the treatment process's ability to reliably and consistently achieve the log reduction. The report and/or challenge test shall be prepared by engineer licensed in California with at least five years of experience, as a licensed engineer, in wastewater treatment and public water supply, including the evaluation of treatment processes for pathogen control. The SWSAP WRA shall propose and include in its Operations Plan prepared pursuant to section 60320.322, on-going monitoring using the pathogenic microorganism of concern or a microbial, chemical, or physical surrogate parameter(s) that verifies the performance of each treatment process's ability to achieve its credited log reduction.

(c) If the applicable pathogen reduction in subsection (a) is not met based on the on-going monitoring required pursuant to subsection (b), within 24 hours of its knowledge of an occurrence, the SWSAP WRA shall investigate the cause and initiate corrective actions. If there is a failure to meet the pathogen reduction criteria longer than 4 consecutive hours or more than a total of 8 hours during any 7-day period, the SWSAP WRA shall, within 24 hours of its knowledge of such a failure, notify the State Board, Regional Board, and each SWSAP PWS utilizing the augmented reservoir. Failures of shorter duration shall be reported to the Regional Board no later than 10 days after the month in which the failure occurred.

(d) The SWSAP WRA shall, within 24 hours of its knowledge, notify the State Board, Regional Board, and each SWSAP PWS utilizing the augmented reservoir and, unless directed otherwise by the State Board and the Regional Board, discontinue delivery of recycled municipal wastewater to the SWSAP augmented reservoir if:

(1) pursuant to the pathogen reduction requirements in subsection (a)(1), the effectiveness of the treatment train to reduce enteric virus is less than 6-logs<sub>10</sub>, *Giardia* cysts reduction is less than 5-logs<sub>10</sub>, or *Cryptosporidium* oocysts reduction is less than 6-logs<sub>10</sub>,

(2) pursuant to the pathogen reduction requirements in subsection (a)(2), the effectiveness of the treatment train to reduce enteric virus is less than 7-logs<sub>10</sub>, *Giardia* cysts reduction is less than 6-logs<sub>10</sub>, or *Cryptosporidium* oocysts reduction is less than 7-logs<sub>10</sub>, or

(3) effectiveness of the treatment train to reduce enteric virus, *Giardia* cysts, or *Cryptosporidium* oocysts is less than a log<sub>10</sub> reduction value derived from deducting 2-logs<sub>10</sub> from each of the minimum enteric virus, *Giardia* cyst, and *Cryptosporidium* oocyst log<sub>10</sub> reductions required pursuant to subsection (a)(3).

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.312 as follows:**

**§60320.312. Regulated Contaminants and Physical Characteristics Control.**

(a) Each quarter a SWSAP WRA shall collect samples (grab or 24-hour composite) representative of the recycled municipal wastewater delivered to the augmented reservoir and have the samples analyzed for:

- (1) the inorganic chemicals in Table 64431-A, Chapter 15;
- (2) the radionuclide chemicals in Tables 64442 and 64443, Chapter 15;
- (3) the organic chemicals in Table 64444-A, Chapter 15;
- (4) the disinfection byproducts in Table 64533-A, Chapter 15.5; and
- (5) lead and copper.

(b) Each year, in the same quarter, the SWSAP WRA shall collect at least one representative sample (grab or 24-hour composite) of the recycled municipal wastewater delivered to the augmented reservoir and have the sample(s) analyzed for the secondary drinking water contaminants in Tables 64449-A and 64449-B of Chapter 15.

(c) If a result of the monitoring performed pursuant to subsection (a) exceeds a contaminant's MCL or action level (for lead and copper), the SWSAP WRA shall collect another sample within 72 hours of notification of the result and have it analyzed for the contaminant as confirmation.

(1) For a contaminant whose compliance with its MCL or action level is not based on a running annual average, if the average of the initial and confirmation sample exceeds the contaminant's MCL or action level, or the confirmation sample is not collected and analyzed pursuant to this subsection, the SWSAP WRA shall notify the State Board and Regional Board within 24 hours and initiate weekly monitoring until four consecutive weekly results are below the contaminant's MCL or action level. If at any time a result causes, or would cause, a running four-week average of weekly results to exceed the contaminant's MCL or action level, the SWSAP WRA shall notify the State Board, each SWSAP PWS utilizing the augmented reservoir, and Regional Board within

24 hours and immediately suspend delivery of the recycled municipal wastewater to the augmented reservoir.

(2) For a contaminant whose compliance with its MCL is based on a running annual average, if the average of the initial and confirmation sample exceeds the contaminant's MCL, or a confirmation sample is not collected and analyzed pursuant to this subsection, the SWSAP WRA shall initiate weekly monitoring for the contaminant until the running four-week average of results no longer exceeds the contaminant's MCL.

(A) If the running four-week average exceeds the contaminant's MCL, a SWSAP WRA shall describe the reason(s) for the exceedance and provide a schedule for completion of corrective actions in a report submitted to the State Board and Regional Board no later than 45 days following the quarter in which the exceedance occurred.

(B) If the running four-week average exceeds the contaminant's MCL for sixteen consecutive weeks, a SWSAP WRA shall notify the State Board, Regional Board, and each SWSAP PWS utilizing the augmented reservoir within 48 hours of knowledge of the exceedance and, if directed by the State Board or Regional Board, suspend delivery of the recycled municipal wastewater to the augmented reservoir.

(d) If the annual average of the results of the monitoring performed pursuant to subsection (b) exceeds a contaminant's secondary MCL in Table 64449-A or the upper limit in Table 64449-B, the SWSAP WRA shall initiate quarterly monitoring of the recycled municipal wastewater for the contaminant and, if the running annual average of quarterly-averaged results exceeds a contaminant's secondary MCL or upper limit, describe the reason(s) for the exceedance and any corrective actions taken a report submitted to the Regional Board no later than 45 days following the quarter in which the exceedance occurred, with a copy concurrently provided to the State Board. The annual monitoring in subsection (b) may resume if the running annual average of quarterly results does not exceed a contaminant's secondary MCL or upper limit.



(e) If four consecutive quarterly results for asbestos are below the detection limit in Table 64432-A for asbestos, monitoring for asbestos may be reduced to one sample every three years. Quarterly monitoring shall resume if asbestos is detected.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564, 13565 and 13567, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.320 as follows:**

**§60320.320. Additional Chemical and Contaminant Monitoring.**

(a) Each quarter, a SWSAP WRA shall sample and analyze the recycled municipal wastewater delivered to the augmented reservoir, for the following:

(1) Priority Toxic Pollutants (chemicals listed in 40 CFR section 131.38, “Establishment of numeric criteria for priority toxic pollutants for the State of California”, as the foregoing may be amended) specified by the State Board, based on the State Board’s review of the SWSAP engineering report; and

(2) Chemicals specified by the State Board, based on its review of the SWSAP engineering report, the results of the augmented reservoir monitoring conducted pursuant to section 60320.326, and the results of the assessment performed pursuant to section 60320.306(b)(1).

(b) Each quarter, a SWSAP WRA shall sample and analyze the recycled municipal wastewater delivered to the augmented reservoir for State Board-specified chemicals having notification levels (NLs). If a result exceeds an NL, within 72 hours of notification of the result the SWSAP WRA shall collect another sample and have it analyzed for the contaminant as confirmation. If the average of the initial and confirmation sample exceeds the contaminant’s NL, or a confirmation sample is not collected and analyzed pursuant to this subsection, the SWSAP WRA shall initiate weekly monitoring for the contaminant until the running four-week average of results does not exceed the NL and the State Board and Regional Board determine weekly monitoring may cease.

(1) If a running four-week average exceeds the contaminant's NL, the SWSAP WRA shall describe the reason(s) for the exceedance and provide a schedule for completion of corrective actions in a report submitted to the Regional Board no later than 45 days following the quarter in which the exceedance occurred, with a copy concurrently provided to the State Board.

(2) If a running four-week average exceeds the contaminant's NL for sixteen consecutive weeks, the SWSAP WRA shall notify the State Board, Regional Board, and each SWSAP PWS utilizing the augmented reservoir within 48 hours of knowledge of the exceedance.

(c) A SWSAP WRA may reduce monitoring for the chemicals in this section to once each year following State Board written approval based on the State Board's review of no less than the most recent two years of results of the monitoring performed pursuant to this section.

(d) Each year, the SWSAP WRA shall monitor the recycled municipal wastewater delivered to the augmented reservoir for indicator compounds specified by the State Board or Regional Board based on the following:

- (1) a review of the SWSAP WRA's engineering report;
- (2) the inventory developed pursuant to section 60320.306(b)(4);
- (3) an indicator compound's ability to characterize the performance of the treatment processes for removal of chemicals; and
- (4) the availability of a test method for a chemical.

(e) A chemical or contaminant detected as a result of monitoring conducted pursuant to this section shall be reported to the State Board and Regional Board no later than the end of the quarter following the quarter in which the SWSAP WRA is notified of the results. If directed by the State Board or Regional Board, the SWSAP WRA shall monitor the recycled municipal wastewater delivered to the augmented reservoir for chemicals or contaminants detected pursuant to section 60320.326.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.322 as follows:**

**§60320.322. SWSAP Operation Plan.**

(a) Prior to operation of a SWSAP, a SWSAP WRA shall submit an Operation Plan to the State Board and Regional Board and receive written approval of the plan from the State Board and Regional Board. At a minimum, the Operation Plan shall identify and describe the operations, maintenance, analytical methods, monitoring necessary for the SWSAP to meet the requirements of this Article, and the reporting of monitoring results to the State Board and Regional Board. The plan shall also identify an on-going training program that includes the elements of the training required pursuant to subsection (b) of this section. A SWSAP WRA shall implement the Operation Plan and update the Operation Plan to ensure that the Operation Plan is, at all times, representative of the current operations, maintenance, and monitoring of the SWSAP. The SWSAP WRA shall make the Operation Plan immediately available to the State Board or Regional Board for review upon request.

(b) Prior to operation of a SWSAP, a SWSAP WRA shall, at a minimum, demonstrate to the State Board and Regional Board that the personnel operating and overseeing the SWSAP operations have received training in the following:

(1) The proper operation of the treatment processes utilized pursuant to sections 60320.302 and 60320.308;

(2) The California Safe Drinking Water Act and its implementing regulations; and

(3) The potential adverse health effects associated with the consumption of drinking water that does not meet California drinking water standards.

(c) At all times recycled municipal wastewater is delivered to the augmented reservoir, the SWSAP WRA shall ensure that all treatment processes are operated in a manner that provides optimal reduction of all chemicals and contaminants including:

- (1) microbial contaminants;
- (2) regulated contaminants identified in section 60320.312; and
- (3) chemicals and contaminants required pursuant to section 60320.320.

(d) Within six months following the first year of optimizing treatment processes pursuant to subsection (c) and anytime thereafter operations are optimized that result in a change in operation, the SWSAP WRA shall update the SWSAP Operation Plan to include the changes in operational procedures and submit the Operation Plan to the State Board and Regional Board for review.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.326 as follows:**

**§60320.326. Augmented Reservoir Monitoring.**

(a) Prior to augmentation of a surface water reservoir using a SWSAP, the SWSAP WRA, in coordination with the SWSAP PWS, shall identify monitoring locations in the augmented reservoir, for State Board review and written approval. The identified monitoring locations must be representative, throughout the volume of the surface water reservoir impacted by the SWSAP, at a minimum, of the following:

- (1) Differing water quality conditions across the horizontal extent of the surface water reservoir;
- (2) Each level in the surface water reservoir corresponding to the depths in which water may be withdrawn; and
- (3) The surface water reservoir's epilimnion and hypolimnion.

(b) Prior to augmentation of a surface water reservoir using a SWSAP, each month, the SWSAP WRA shall collect samples for no less than 24 consecutive months, from the monitoring locations established pursuant to subsection (a). The samples shall be analyzed for the contaminants in tables 64449-A and B of Chapter 15, total organic carbon (TOC), total nitrogen, *E. coli*, total coliform bacteria, temperature, dissolved oxygen, chlorophyll a, total and dissolved phosphorus, and other State Board-specified chemicals and contaminants based on a review of the SWSAP WRA's engineering report and the results of the assessment performed pursuant to section 60320.306(b)(1).

(c) The SWSAP WRA shall continue to conduct monthly monitoring pursuant to subsection (b) for no less than the initial 24 months a SWSAP WRA is delivering recycled municipal wastewater to an augmented reservoir. In addition, the on-going monitoring required by this section shall include State Board-specified chemicals and contaminants based on SWSAP operations and the results of recycled municipal wastewater monitoring conducted pursuant to this Article.

(d) After completion of the 24-months of monthly monitoring conducted pursuant to subsection (c) and consultation with each SWSAP PWS utilizing the reservoir as a source of drinking water, a SWSAP WRA may apply to the State Board for reduced on-going monitoring. The SWSAP WRA shall obtain State-Board written approval prior to implementation of the reduced monitoring. The reduced on-going monitoring frequency may be no less than once every 12 months.

(e) Notwithstanding subsection (b), (c), and (d), based on the results of reservoir monitoring, the State Board may require a SWSAP WRA to ~~shall~~ monitor for any State Board-specified chemicals or contaminants, at the locations and frequencies specified by the State Board.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1,

13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.328 as follows:**

**§60320.328. Reporting.**

(a) By July 1<sup>st</sup> of each year, a SWSAP WRA shall provide a report to the State Board and Regional Board, and make a copy of the report available to each SWSAP PWS affected by the SWSAP. Each SWSAP PWS shall be notified by direct mail and/or electronic mail of the availability of the report. The report shall be prepared by an engineer licensed in California and experienced in the fields of wastewater treatment and public water supply, or California-licensed engineers collectively having the experience. The report shall include the following:

(1) A summary of the SWSAP compliance status with the monitoring requirements and criteria of this Article during the previous calendar year;

(2) For any violations of this Article during the previous calendar year;

(A) the date, duration, and nature of the violation,

(B) a summary of any corrective actions and/or suspensions of delivery of recycled municipal wastewater to an augmented reservoir resulting from a violation, and

(C) if uncorrected, a schedule for and summary of all remedial actions;

(3) Any detections of monitored chemicals or contaminants, and any observed trends in the monitoring results of the augmented reservoir required pursuant to section 60320.326;

(4) A description of any changes in the operation of any unit processes or facilities;

(5) A description of any anticipated changes, along with an evaluation of the expected impact of the changes on subsequent unit processes;

(6) The estimated quantity and quality of the recycled municipal wastewater to be delivered for the next calendar year, as well as the quantity delivered during the previous three years; and

(7) A summary of the measures taken to comply with section 60320.306 and 60320.301(e), and the effectiveness of the implementation of the measures.

(b) No less frequently than every five years from the date of the initial approval of the engineering report required pursuant to section 60323, Article 7 of Chapter 3, the SWSAP WRA shall update the engineering report to address any SWSAP changes from the previous engineering report, and submit the report to the State Board and Regional Board. The update shall include, but not be limited to, the anticipated increases in delivery of recycled municipal wastewater and a description of the expected impact the increase will have on the SWSAP WRA's ability to meet the requirements of this Article.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.

**Adopt Section 60320.330 as follows:**

**§60320.330. Alternatives.**

(a) A SWSAP WRA may use an alternative to a requirement in this Article if the SWSAP WRA:

(1) demonstrates to the State Board that the proposed alternative provides an equivalent or better level of performance with respect to the efficacy and reliability of the removal of contaminants of concern to public health, and ensures at least the same level of protection to public health;

(2) receives written approval from the State Board prior to implementation of the alternative; and

(3) if required by the State Board or Regional Board, conducts a public hearing on the proposed alternative, disseminates information to the public, and receives public comments.

(b) The demonstration in subsection (a)(1) shall include the results of a review of the proposed alternative by an independent scientific advisory panel, approved by the State Board, that includes, but is not limited to, a toxicologist, a limnologist, an engineer licensed in California with at least three years of experience in wastewater treatment and public drinking water supply, a microbiologist, and a chemist.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Section 116271, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564 and 13565, Water Code; and Section 116551, Health and Safety Code.



**DIVISION 4, CHAPTER 17**

**ARTICLE 9. Indirect Potable Reuse: Surface Water Augmentation**

**Adopt Section 64668.05 as follows:**

**Section 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. 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).

**Adopt Section 64668.10 as follows:**

**Section 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, Article 1, Chapter 3.

(2) "Surface Water Source Augmentation Project" or "SWSAP" has the same meaning as defined in section 60301.851, 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, 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, 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
- (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 of 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 Chapter 3, Article 5.3, shall immediately notify the State Board.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Sections 116271 and 116375, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564, 13565 and 13567, Water Code; and Sections 116275, 116365, 116375, 116385, 116390, 116400, 116525, 116530, 116535, 116540, 116550, 116551, and 116735, Health and Safety Code.

**Adopt Section 64668.20 as follows:**

**§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/or

(2) television and/or radio broadcast locally.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Sections 116271 and 116375, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564, 13565 and 13567, Water Code; and Sections 116275, 116365, 116375, 116385, 116390, 116400, 116530, 116535, 116550, 116551, and 116735, Health and Safety Code.

**Adopt Section 64668.30 as follows:**

**§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 of 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 its 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 its 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 log<sub>10</sub> reduction for enteric virus, *Giardia* cysts, and *Cryptosporidium* oocysts. For proposed alternative

minimum theoretical retention times less than 120 days, no less than one log<sub>10</sub> 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 this paragraph (paragraph (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-log<sub>10</sub> 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, but shall be independent of and not reliant on the other treatment processes.

(B) The SWSAP PWS, in consultation with the SWSAP WRA, shall obtain the additional treatment process information necessary for demonstrating that the requirements of section 60320.308(a)(2) of Chapter 3 and this paragraph 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.

NOTE: Authority cited: Sections 13521 and 13562, Water Code; and Sections 116271 and 116375, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561, 13564, 13565 and 13567, Water Code; and Sections 116275, 116365, 116375, 116385, 116390, 116400, 116530, 116535, 116550, 116551, and 116735, Health and Safety Code.