

**TITLE 22, CALIFORNIA CODE OF REGULATIONS**

**DIVISION 4, CHAPTER 3  
ARTICLE 1. Definitions**

**(1) Adopt Section 60301.050 as follows:**

**§60301.050. 24-hour Composite Sample.**

“24-hour Composite Sample” means an aggregate sample derived from no fewer than eight discrete samples collected at equal time intervals or collected proportional to the flow rate over the compositing period. The aggregate sample shall reflect the average source water quality covering the composite 24-hour sample period.

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

**(2) Adopt Section 60301.080 as follows:**

**§60301.080. Added Tracer.**

“Added Tracer” means a non-reactive substance, with measureable characteristics distinctly different from the receiving groundwater, intentionally added to the water applied at a Groundwater Replenishment Reuse Project (GRRP) for the purpose of being a tracer such that the tracer can be readily identified in the groundwater downgradient of the GRRP to determine the underground retention time of the applied water.

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

**(3) Adopt Section 60301.180 as follows:**

**§60301.180. Department.**

“Department” means the California Department of Public Health or its successor with authority to regulate public water systems.

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

**(4) Adopt Section 60301.190 as follows:**

**§60301.190. Diluent Water.**

“Diluent Water” means water, meeting the diluent requirements of this Chapter, used for reducing the recycled municipal wastewater contribution over time.

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

**(5) Adopt Section 60301.370 as follows:**

**§60301.370. Groundwater.**

“Groundwater” means water below the land surface in a saturated zone.

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

**(6) Adopt Section 60301.390 as follows:**

**§60301.390. Groundwater Replenishment Reuse Project or GRRP.**

“Groundwater Replenishment Reuse Project” or “GRRP” means a project involving the planned use of recycled municipal wastewater that is operated for the purpose of replenishing a groundwater basin designated in the Water Quality Control Plan [as

defined in Water Code section 13050(j)] for use as a source of municipal and domestic water supply.

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

**(7) Adopt 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, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561 and 13562.5, Water Code.

**(8) Adopt Section 60301.455 as follows:**

**§60301.455. Intrinsic Tracer.**

“Intrinsic Tracer” means a substance or attribute present in the recharge water at levels different from the receiving groundwater such that the substance in the water applied at the GRRP can be distinctly and sufficiently detected in the groundwater downgradient of the GRRP to determine the underground retention time of the water.

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

**(9) Adopt Section 60301.575 as follows:**

**§60301.575. Maximum Contaminant Level or MCL.**

“Maximum Contaminant Level” or “MCL” means the maximum permissible concentration of a contaminant established pursuant to sections 116275(c)(1) and (d) of the Health and Safety Code or established by the U.S. Environmental Protection Agency.

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

**(10) Adopt Section 60301.625 as follows:**

**§60301.625. Notification Level or NL.**

“Notification Level” or “NL” means the concentration of a contaminant established by the Department pursuant to section 116455 of the Health and Safety Code.

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

**(11) Adopt Section 60301.670 as follows:**

**§60301.670. Project Sponsor.**

"Project Sponsor" means an entity subject to a Regional Water Quality Control Board's (Regional Board's) water recycling requirements for a Groundwater Replenishment Reuse Project (GRRP) and is, in whole or part, responsible for applying to the Regional Board for a permit, obtaining a permit, operation of a GRRP, and complying with the terms and conditions of the permit and the requirements of this Chapter.

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

**(12) Adopt Section 60301.680 as follows:**

**§60301.680. Public Water System.**

“Public Water System” has the same meaning as defined in section 116275(h) of the Health and Safety Code.

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

**(13) Adopt Section 60301.685 as follows:**

**§60301.685. Recharge Water.**

“Recharge Water” means recycled municipal wastewater, or the combination of recycled municipal wastewater and credited diluent water, which is utilized by a GRRP for groundwater replenishment.

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

**(14) Adopt Section 60301.690 as follows:**

**§60301.690. Recycled Municipal Wastewater.**

“Recycled Municipal Wastewater” means recycled water that is the effluent from the treatment of wastewater of municipal origin.

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

**(15) Adopt Section 60301.705 as follows:**

**§60301.705. Recycled Municipal Wastewater Contribution or RWC.**

“Recycled Municipal Wastewater Contribution” or “RWC” means the fraction equal to the quantity of recycled municipal wastewater applied at the GRRP divided by the sum of the quantity of recycled municipal wastewater and credited diluent water.

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

**(16) Adopt Section 60301.770 as follows:**

**§60301.770. Regional Board.**

“Regional Board” means the Regional Water Quality Control Board.

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

**(17) Adopt Section 60301.780 as follows:**

**§60301.780. Saturated Zone.**

“Saturated Zone” means an underground region or regions in which all interstices in, between, and below natural geologic materials are filled with water, with the uppermost surface of the saturated zone being the water table.

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

**(18) Adopt Section 60301.810 as follows:**

**§60301.810. Spreading Area.**

“Spreading Area” means a natural or constructed impoundment with a depth equal to or less than its widest surface dimension used by a GRRP to replenish a groundwater basin with recharge water infiltrating and percolating through a zone that, in the absence of a GRRP, would be an unsaturated zone.

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

**(19) Adopt Section 60301.840 as follows:**

**§60301.840. Subsurface Application.**

"Subsurface Application" means the application of recharge water to a groundwater basin(s) by a means other than surface application.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(20) Adopt Section 60301.850 as follows:**

**§60301.850. Surface Application.**

"Surface Application" means the application of recharge water to a spreading area.

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

**(21) Adopt Section 60301.855 as follows:**

**§60301.855. Surrogate Parameter.**

“Surrogate Parameter” means a measurable physical or chemical property that has been demonstrated to provide a direct correlation with the concentration of an indicator compound, can be used to monitor the efficiency of trace organic compounds removal by a treatment process, and/or provides an indication of a treatment process failure.

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

**(22) Adopt Section 60301.860 as follows:**

**§60301.860. Total Nitrogen.**

“Total Nitrogen” means the sum of concentrations of ammonia, nitrite, nitrate, and organic nitrogen-containing compounds, expressed as nitrogen.

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

**(23) Adopt Section 60301.870 as follows:**

**§60301.870. Total Organic Carbon or TOC.**

“Total Organic Carbon” or “TOC” means the concentration of organic carbon present in water.

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



**(24) Adopt Section 60301.910 as follows:**

**§60301.910. Unsaturated Zone.**

“Unsaturated Zone” means the volume between the land surface and the uppermost saturated zone.

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

**ARTICLE 5.1. Indirect Potable Reuse: Groundwater Recharge Replenishment – Surface Application**

**(25) Repeal Section 60320:**

**§60320. Groundwater Recharge.**

~~a) Reclaimed water used for groundwater recharge of domestic water supply aquifers by surface spreading shall be at all times of a quality that fully protects public health. The State Department of Health Services' recommendations to the Regional Water Quality Control Boards for proposed groundwater recharge projects and for expansion of existing projects will be made on an individual case basis where the use of reclaimed water involves a potential risk to public health.~~

~~(b) The State Department of Health Services' recommendations will be based on all relevant aspects of each project, including the following factors: treatment provided; effluent quality and quantity; spreading area operations; soil characteristics; hydrogeology; residence time; and distance to withdrawal.~~

~~(c) The State Department of Health Services will hold a public hearing prior to making the final determination regarding the public health aspects of each groundwater recharge project. Final recommendations will be submitted to the Regional Water Quality Control Board in an expeditious manner.~~

~~NOTE: Authority cited: Section 208, Health and Safety Code; and Section 13521, Water Code. Reference: Sections 13520 and 13521, Water Code.~~

**(26) Adopt Section 60320.100 as follows:**

**§60320.100. General Requirements.**

(a) The requirements of this Article apply to Groundwater Replenishment Reuse Projects (GRRPs) utilizing surface application, which receive initial permits from the Regional Board after *[insert effective date]*. Within 12 months after *[insert effective*

date] a project sponsor for a GRRP permitted on or before [insert effective date] shall submit a report to the Department and appropriate Regional Board assessing its compliance with the requirements of this Article. For each requirement considered noncompliant and applicable by the Department or Regional Board, a project sponsor shall submit a schedule to the Department and Regional Board, for demonstrating and/or achieving compliance with the applicable requirements of this Article. Unless directed otherwise by the Department, a project sponsor's report for a GRRP permitted on or before [insert effective date] need not assess compliance with requirements of this Article that are required to be met prior to operation of a GRRP, except subsection (b) of this section. The report is subject to review and approval by the Department and Regional Board.

(b) Prior to operation of a GRRP, the GRRP's project sponsor shall obtain Department approval of a plan describing the steps a project sponsor will take to provide an alternative source of drinking water supply to all users of a producing drinking water well, or a Department-approved treatment mechanism a project sponsor will provide to all owners of a producing drinking water well, that as a result of the GRRP's operation, as determined by the Department:

- (1) violates a California or federal drinking water standard;
- (2) has been degraded to the degree that it is no longer a safe source of drinking water; or
- (3) receives water that fails to meet section 60320.108.

(c) Prior to operating a GRRP, a project sponsor shall collect at least four samples, at least one sample each quarter, from each potentially affected aquifer. The samples shall be representative of water in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to sections 60320.110, 60320.112, 60320.118, and 60320.120.

(d) A GRRP's recycled municipal wastewater shall be retained underground for a period of time no less than the retention time required pursuant to sections 60320.108

and 60320.124. The GRRP shall be designed and operated in a manner that ensures water treated pursuant to this Article, beyond the boundary described in subsection (e)(2), meets the recycled municipal wastewater contributions (RWC) requirements in section 60320.116.

(e) Based on hydrogeologic flowpaths, a GRRP's project sponsor shall provide the Department, Regional Board, and local well-permitting authorities a map of the GRRP 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 the criteria in paragraphs (1) – (4) below. A revised map shall be prepared and provided when conditions change such that the previous map no longer accurately reflects current conditions.

(1) the location and boundaries of the GRRP;

(2) a boundary representing a zone of controlled drinking water well construction, the greatest of the horizontal and vertical distances reflecting the retention times required pursuant to sections 60320.108 and 60320.124;

(3) a secondary boundary representing a zone of potential controlled drinking water well construction, depicting the zone within which a well would extend the boundary in paragraph (2) to include existing or potential future drinking water wells, thereby requiring further study and potential mitigating activities prior to drinking water well construction; and

(4) the location of all monitoring wells established pursuant to section 60320.126, and drinking water wells within two years travel time of the GRRP based on groundwater flow directions and velocities expected under GRRP operating conditions.

(f) Prior to operating a GRRP, a project sponsor shall demonstrate to the Department and Regional Board that a project sponsor possesses adequate managerial and technical capability to assure compliance with this Article.

(g) Prior to replenishing a groundwater basin or an aquifer with recycled municipal wastewater, a GRRP's project sponsor shall demonstrate that all treatment

processes have been installed and can be operated by a project sponsor 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 section 60323.

(h) In the engineering report required pursuant to section 60323, a project sponsor for a GRRP shall include a hydrogeological assessment of the proposed GRRP's setting. The assessment shall include the following:

- (1) the qualifications of the individual(s) preparing the assessment;
- (2) a general description of geologic and hydrogeological setting of the groundwater basin(s) potentially directly impacted by the GRRP;
- (3) a detailed description of the stratigraphy beneath the GRRP, including the composition, extent, and physical properties of the affected aquifers; and
- (4) based on at least four rounds of consecutive quarterly monitoring to capture seasonal impacts;
  - (A) the existing hydrogeology and the hydrogeology anticipated as a result of the operation of the GRRP, and
  - (B) maps showing quarterly groundwater elevation contours, along with vector flow directions and calculated hydraulic gradients.

(i) If a project sponsor fails to complete compliance monitoring required pursuant to this Article, the Regional Board may determine water quality-related compliance based on available data.

(j) A project sponsor shall ensure that the recycled municipal wastewater used for a GRRP shall be from a wastewater management agency that is not in violation of the effluent limits pertaining to groundwater replenishment pursuant to this Article, as established in the wastewater management agency's Regional Board permit.

(k) If a project sponsor has been directed by the Department or Regional Board to suspend surface application pursuant to this Article, surface application shall not

resume until the project sponsor has obtained Department and Regional Board approval.

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

**(27) Adopt Section 60320.102 as follows:**

**§60320.102. Public Hearing.**

(a) A public hearing for a GRRP shall be held by a project sponsor prior to the Department's submittal of its recommendations to the Regional Board for the GRRP's initial permit and any time an increase in maximum RWC has been proposed but not addressed in a prior public hearing. Prior to a public hearing conducted pursuant to this section, a project sponsor shall provide the Department, for its review and approval, the information a project sponsor intends to present at the hearing. Following the Department's approval of the information, a project sponsor shall place the information on a project sponsor's Web site and in a repository that provides at least 30 days of public access to the information prior to the public hearing.

(b) Prior to placing the information required pursuant to subsection (a) in a repository, a project sponsor shall:

(1) Notify the public of the following:

(A) the location and hours of operation of the repository,

(B) the Internet address where the information may be viewed,

(C) the purpose of the repository and public hearing,

(D) the manner in which the public can provide comments, and

(E) the date, time, and location of the public hearing; and

(2) At a minimum, notify the first downgradient drinking water well owner and well owners whose drinking water well is within 10 years from the GRRP based on groundwater flow directions and velocities.

(c) Unless directed otherwise by the Department, the public notification made pursuant to subsection (b)(2) shall be by direct mail and the notification made pursuant to subsection (b)(1) shall be delivered in a manner to reach persons whose source of drinking water may be impacted by the GRRP, using one or more of the following methods:

- (1) local newspaper(s) publication of general circulation;
- (2) mailed or direct delivery of a newsletter;
- (3) conspicuously placed statement in water bills; and/or
- (4) television and/or radio.

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

**(28) Adopt Section 60320.104 as follows:**

**§60320.104. Lab Analyses.**

(a) Analyses for contaminants having primary or secondary MCLs shall be performed by laboratories approved to perform such analyses by the Department utilizing Department-approved drinking water methods.

(b) Analyses for chemicals other than those having primary or secondary MCLs shall be described in the GRRP's Operation Optimization Plan prepared pursuant to section 60320.122.

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

**(29) Adopt Section 60320.106 as follows:**

**§60320.106. Wastewater Source Control.**

A project sponsor shall ensure that the recycled municipal wastewater used for a GRRP 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 Department-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 Department-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 GRRP, 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 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, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561 and 13562.5, Water Code.



**(30) Adopt Section 60320.108 as follows:**

**§60320.108. Pathogenic Microorganism Control.**

(a) A project sponsor shall design and operate a GRRP such that the recycled municipal wastewater used as recharge water for a GRRP receives treatment that achieves at least 12-log enteric virus reduction, 10-log Giardia cyst reduction, and 10-log Cryptosporidium oocyst reduction. The treatment train shall consist of at least three separate treatment processes. Except as provided in subsection (c), for each pathogen (i.e., virus, Giardia cyst, or Cryptosporidium oocyst), a separate treatment process may be credited with no more than 6-log reduction, with at least three processes each being credited with no less than 1.0-log reduction.

(b) At a minimum, the recycled municipal wastewater applied at a GRRP shall receive treatment that meets:

- (1) the definition of filtered wastewater, pursuant to section 60301.320; and
- (2) the definition of disinfected tertiary recycled water, pursuant to section 60301.230.

(c) For each month retained underground as demonstrated in subsection (e), the recycled municipal wastewater or recharge water will be credited with 1-log virus reduction. A GRRP meeting subsections (b)(1) and (2) or providing advanced treatment in accordance with section 60320.201 for the entire flow of the recycled municipal wastewater used for groundwater replenishment, that also demonstrates at least six months retention underground pursuant to subsection (e), will be credited with 10-log Giardia cyst reduction and 10-log Cryptosporidium oocyst reduction.

(d) With the exception of log reduction credited pursuant to subsection (c), a project sponsor 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 Department's review and approval, or by using a challenge test approved by the Department, 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 an 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. With the exception of retention time underground and a soil-aquifer treatment process, a project sponsor shall propose and include in its Operation Optimization Plan prepared pursuant to section 60320.122, 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.

(e) To demonstrate the retention time underground in subsection (c), a tracer study utilizing an added tracer shall be implemented under hydraulic conditions representative of normal GRRP operations. The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reached the monitoring point. A project sponsor for a GRRP shall initiate the tracer study prior to the end of the third month of operation. A project sponsor for a GRRP permitted on or before *insert effective date* that has not already performed such a tracer study shall complete a tracer study demonstrating the retention time underground. With Department approval, an intrinsic tracer may be used in lieu of an added tracer, with no more credit provided than the corresponding virus log reduction in column 2 of Table 60320.108.

(f) For the purpose of siting a GRRP location during project planning and until a GRRP's project sponsor has met the requirements of subsection (e), for each month of retention time estimated using the method in column 1, the recycled municipal wastewater or recharge water shall be credited with no more than the corresponding virus log reduction in column 2 of Table 60320.108.

**Table 60320.108**

<b><u>Column 1</u></b>	<b><u>Column 2</u></b>
<b><u>Method used to estimate the retention time to the nearest downgradient drinking water well</u></b>	<b><u>Virus Log Reduction Credit per Month</u></b>
<u>Tracer study utilizing an added tracer.<sup>1</sup></u>	<u>1.0 log</u>
<u>Tracer study utilizing an intrinsic tracer.<sup>1</sup></u>	<u>0.67 log</u>
<u>Numerical modeling consisting of calibrated finite element or finite difference models using validated and verified computer codes used for simulating groundwater flow.</u>	<u>0.50 log</u>
<u>Analytical modeling using existing academically-accepted equations such as Darcy's Law to estimate groundwater flow conditions based on simplifying aquifer assumptions.</u>	<u>0.25 log</u>

<sup>1</sup> The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reached the monitoring point.

(g) A project sponsor shall obtain Department approval for the protocol(s) to be used to establish the retention times in subsections (e) and (f).

(h) Based on changes in hydrogeological or climatic conditions since the most recent demonstration, the Department may require a GRRP's project sponsor to demonstrate that the underground retention times required in this section are being met.

(i) If a pathogen reduction in subsection (a) is not met based on the on-going monitoring required pursuant to subsection (d), within 24 hours of being aware a project sponsor shall immediately investigate the cause and initiate corrective actions. The project sponsor shall immediately notify the Department and Regional Board if the GRRP fails to meet the pathogen reduction criteria longer than 4 consecutive hours, or more than a total of 8 hours during any 7-day period. Failures of shorter duration shall be reported to the Regional Board by a project sponsor no later than 10 days after the month in which the failure occurred.

(j) If the effectiveness of a treatment train's ability to reduce enteric virus is less than 10-logs, or Giardia cyst or Cryptosporidium oocyst reduction is less than 8-logs, a project sponsor shall immediately notify the Department and Regional Board, and discontinue application of recycled municipal wastewater at the GRRP, unless directed otherwise by the Department or Regional Board.

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

**(31) Adopt Section 60320.110 as follows:**

**§60320.110. Nitrogen Compounds Control.**

(a) To demonstrate control of the nitrogen compounds, a project sponsor shall:

(1) Each week, at least three days apart as specified in the GRRP's Operation Optimization Plan, collect at least two total nitrogen samples (grab or 24-hour composite) representative of the recycled municipal wastewater or recharge water applied throughout the spreading area. Samples may be collected before or after surface application;

(2) Have the samples collected pursuant to paragraph (1) analyzed for total nitrogen, with the laboratory being required by a project sponsor to complete each analysis within 72 hours and have the result reported to a project sponsor within the same 72 hours if the result of any single sample exceeds 10 mg/L;

(3) If the average of the results of two consecutive samples collected pursuant to paragraph (1) exceeds 10 mg/L total nitrogen;

(A) take a confirmation sample and notify the Department and the Regional Board within 48 hours of being notified of the results by the laboratory,

(B) investigate the cause for the exceedances and take actions to reduce the total nitrogen concentrations to ensure continued or future exceedances do not occur, and

(C) initiate additional monitoring for nitrogen compounds as described in the GRRP's Operation Optimization Plan, including locations in the groundwater basin and spreading area, to identify elevated concentrations and determine whether such elevated concentrations exceed or may lead to an exceedance of a nitrogen-based MCL; and

(4) If the average of the results of four consecutive samples collected pursuant to paragraph (1) exceeds 10 mg/L total nitrogen, suspend the surface application of recycled municipal wastewater. Surface application shall not resume until corrective actions have been taken and at least two consecutive total nitrogen sampling results are less than 10 mg/L.

(b) As determined by the Department and based on a GRRP's operation, including but not limited to the time the spreading area is out of service and utilization of a denitrification process, a project sponsor shall initiate additional monitoring for nitrogen compounds to identify elevated concentrations in the groundwater and determine whether such elevated concentrations exceed or may lead to an exceedance of a nitrogen-based MCL.

(c) Following Department and Regional Board approval, a project sponsor may initiate reduced monitoring frequencies for total nitrogen. A project sponsor may apply

to the Department and Regional Board for reduced monitoring frequencies for total nitrogen if, for the most recent 24 months:

- (1) the average of all results did not exceed 5 mg/L total nitrogen; and
- (2) the average of a result and its confirmation sample (taken within 24 hours of receipt of the initial result) did not exceed 10 mg/L total nitrogen.

(d) If the results of reduced monitoring conducted as approved pursuant to subsection (c) exceed the total nitrogen concentration criteria in subsection (c), a project sponsor shall revert to the monitoring frequencies for total nitrogen prior to implementation of the reduced frequencies. Reduced frequency monitoring shall not resume unless the requirements of subsection (c) are met.

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

**(32) Adopt Section 60320.112 as follows:**

**§60320.112. Regulated Contaminants and Physical Characteristics Control.**

(a) Each quarter, as specified in the GRRP's Operation Optimization Plan, a project sponsor shall collect samples (grab or 24-hour composite) representative of the applied recycled municipal wastewater and have the samples analyzed for:

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

(b) Recharge water (including recharge water after surface application) may be monitored in lieu of recycled municipal wastewater to satisfy the monitoring requirements in subsection (a)(4) if the fraction of recycled municipal wastewater in the recharge water is equal to or greater than the average fraction of recycled municipal

wastewater in the recharge water applied over the quarter. If the fraction of recycled municipal wastewater in the recharge water being monitored is less than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter, the reported value shall be adjusted to exclude the effects of dilution.

(c) Each year, the GRRP's project sponsor shall collect at least one representative sample (grab or 24-hour composite) of the recycled municipal wastewater or recharge water and have the sample(s) analyzed for the secondary drinking water contaminants in Tables 64449-A and 64449-B.

(d) If a result of the monitoring performed pursuant to subsection (a) exceeds a contaminant's MCL or action level (for lead and copper), a project sponsor shall collect another sample within 72 hours of notification of the result and then 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 GRRP's project sponsor shall notify the Department 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 the running four-week average exceeds the contaminant's MCL or action level, the GRRP's project sponsor shall notify the Department and Regional Board within 24 hours and, if directed by the Department or Regional Board, suspend application of the recycled municipal wastewater.

(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 GRRP shall initiate weekly monitoring for the contaminant until the running four-week average no longer exceeds the contaminant's MCL.

(A) If the running four-week average exceeds the contaminant's MCL, a project sponsor shall describe the reason(s) for the exceedance and provide a schedule for

completion of corrective actions in a report submitted to the Department 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 project sponsor shall notify the Department and Regional Board within 48 hours of knowledge of the exceedance and, if directed by the Department or Regional Board, suspend application of the recycled municipal wastewater.

(e) If the annual average of the results of the monitoring performed pursuant to subsection (c) exceeds a contaminant's secondary MCL in Table 64449-A or the upper limit in Table 64449-B, a project sponsor 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 in a report submitted to Regional Board no later than 45 days following the quarter in which the exceedance occurred, with a copy concurrently provided to the Department. The annual monitoring in subsection (c) may resume if the running annual average of quarterly results does not exceed a contaminant's secondary MCL or upper limit.

(f) 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, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13560, 13561 and 13562.5, Water Code.

**(33) Adopt Section 60320.114 as follows:**

**§60320.114. Diluent Water Requirements.**

To be credited with diluent water used in calculating an RWC pursuant to section 60320.116, the GRRP shall comply with the requirements of this section and receive Department approval. For diluent water that is a Department-approved drinking water



source, the GRRP's project sponsor is exempt from subsections (a) and (b). The GRRP's project sponsor shall:

(a) Monitor the diluent water quarterly for nitrate and nitrite and, within 72 hours of being informed by the laboratory of a nitrate, nitrite, or nitrate plus nitrite result exceeding a maximum contaminant level (MCL), collect a confirmation sample. If the average of the two samples is greater than an MCL;

(1) notify the Department and the Regional Board within 48 hours of receiving the confirmation sample result,

(2) investigate the cause(s) and implement corrective actions, and

(3) each week, collect and analyze two grab samples at least three days apart as specified in the GRRP's Operation Optimization Plan. If the average of the results for a two-week period exceeds the MCL, surface application of the diluent water shall not be used in the calculation of RWC until corrective actions are made. Quarterly monitoring may resume if four consecutive results are below the MCL.

(b) Conduct a source water evaluation per the California-Nevada Section of American Water Works Association's Watershed Sanitary Survey Guidance Manual (1993), as it may be amended, or other Department-approved evaluation, of the diluent water for Department review and approval that includes, but is not limited to:

(1) a description of the source of the diluent water;

(2) delineation of the origin and extent of the diluent water;

(3) the susceptibility of the diluent water to contamination;

(4) the identification of known or potential contaminants; and

(5) an inventory of the potential sources of diluent water contamination.

(c) Ensure diluent water does not exceed a primary MCL, a secondary MCL upper limit (if not historically used to recharge the basin), or a notification level (NL), and implement a Department-approved water quality monitoring plan for Department-specified contaminants to demonstrate compliance with the primary MCLs, secondary MCLs (except turbidity, color, and odor), and NLs. The plan shall also include:

(1) except for Department-approved drinking water sources used as a diluent water, monitoring of any chemicals or contaminants required pursuant to section 60320.120, based on the source water evaluation performed in subsection (b); and

(2) actions to be taken in the event of non-compliance with a primary MCL, secondary MCL, or exceedance of a NL.

(d) Develop a method for determining the volume of diluent water to be credited and demonstrate that the diluent water will be introduced in a manner such that the diluent water volume will not result in the GRRP's 120-month running monthly average RWC exceeding its maximum RWC at or beyond the boundary established pursuant to section 60320.100(e)(2). The method shall be submitted to the Department for review and approval, and be conducted at a frequency specified in the engineering report prepared pursuant to section 60323. The method shall address all conditions that influence how and when the recycled municipal wastewater and diluent water arrive at all points along the boundary. The conditions must include, but are not limited to, temporal variability in the diluent water supply and regional groundwater gradients, the difference in the distribution of the recycled municipal wastewater and diluent water between individual aquifers where more than one aquifer is replenished, and the difference in travel-time when recycled municipal wastewater and diluent water are introduced at different locations and/or times.

(e) For credit prior to the operation of the GRRP, but not to exceed 120 months:

(1) demonstrate that the diluent water met the nitrate, nitrite, and nitrate plus nitrite MCLs, NLs, and the water quality requirements in section 60320.112;

(2) provide evidence that the quantity of diluent water has been accurately determined and was distributed such that the proposed or permitted maximum RWC would not have been exceeded; and

(3) conduct a source water evaluation of the diluent water pursuant to subsection (b).

(f) In the Operation Optimization Plan prepared pursuant to section 60320.122, include a description of:

(1) how the diluent water will be distributed in a manner that ensures that the maximum RWC will not be exceeded during normal operations; and

(2) the actions to be taken in the event the diluent water is curtailed or is no longer available.

(g) If approved by the Department, recharge water may be monitored in lieu of a diluent water source if the diluent water source cannot be monitored directly in a manner that provides samples representative of the diluent water being applied.

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

**(34) Adopt Section 60320.116 as follows:**

**§60320.116. Recycled Municipal Wastewater Contribution (RWC) Requirements.**

(a) Each month, for each surface application GRRP used for replenishing a groundwater basin, the GRRP's project sponsor shall calculate the running monthly average (RMA) RWC based on the total volume of the recycled municipal wastewater and credited diluent water for the preceding 120 months. For GRRPs in operation less than 120 months, calculation of the RMA RWC shall commence after 30 months of recycled municipal wastewater application, based on the total volume of the recycled municipal wastewater and credited diluent water introduced during the preceding months.

(b) The GRRP's RMA RWC, as determined in subsection (a), shall not exceed the maximum RWC specified for the GRRP by the Department.

(c) The initial maximum RWC shall not exceed 0.20 or an alternative initial RWC approved by the Department. An alternative initial RWC up to 1.0 may be approved by

the Department based on, but not limited to, the Department's review of the engineering report, the information obtained as a result of the public hearing(s), and a project sponsor's demonstration that the treatment processes preceding the soil-aquifer treatment process will reliably achieve total organic carbon (TOC) concentrations no greater than 0.5 mg/L divided by the proposed initial RWC.

(d) A GRRP may increase its maximum RWC, provided:

(1) the increase has been approved by the Department and Regional Board;

(2) for the previous 52 weeks, the TOC 20-week running average, as monitored pursuant to section 62320.118, has not exceeded 0.5 mg/L divided by the proposed maximum RWC; and

(3) the GRRP has received a permit from the Regional Board that allows operation of the GRRP at the increased maximum RWC.

(e) In addition to the requirements in subsection (d), prior to operating a GRRP at an RWC greater than 0.50 or 0.75, which must be achieved sequentially, a project sponsor shall:

(1) provide a proposal to the Department prepared and signed by an engineer licensed in California with at least three years of experience in wastewater treatment and public water supply;

(2) submit an updated engineering report and Operation Optimization Plan; and

(3) provide evidence of compliance with section 60320.126(a).

(f) If the RMA RWC exceeds its maximum RWC, the GRRP's project sponsor shall:

(1) notify the Department and Regional Board in writing within seven days of knowledge of the exceedance; and

(2) within 60 days of knowledge of the exceedance, implement corrective action(s) and additional actions that may be required by the Department or Regional Board, and submit a report to the Department and Regional Board describing the

reason(s) for the exceedance and the corrective action(s) taken to avoid future exceedances.

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

**(35) Adopt Section 60320.118 as follows:**

**§60320.118. Total Organic Carbon (TOC) and Soil-Aquifer Treatment (SAT) Process Requirements.**

For each surface application GRRP used for replenishing a groundwater basin, the GRRP's project sponsor shall assess the SAT process through the monitoring of TOC, indicator compounds, and surrogate parameters, as approved by the Department.

(a) At least once each week, a project sponsor shall analyze TOC from representative 24-hour composite samples of the following:

(1) the undiluted recycled municipal wastewater, prior to application or within the zone of percolation;

(2) the diluted percolated recycled municipal wastewater, with the value amended to negate the effect of the diluent water; or

(3) the undiluted recycled municipal wastewater prior to application, with the value amended using a soil-aquifer treatment factor approved by the Department and based on demonstration studies, which reliably predicts the removal efficiency of the process.

(b) Grab samples may be used in lieu of the 24-hour composite samples required in subsection (a) if:

(1) the GRRP demonstrates that a grab sample is representative of the water quality throughout a 24-hour period; or

(2) the entire recycled municipal wastewater stream has been treated by reverse osmosis meeting the criteria in sections 60320.201(a) and (b).

(c) Analytical results of the TOC monitoring performed pursuant to subsection (a) shall not exceed 0.5 mg/L divided by the RMA RWC based on:

- (1) the 20-week running average of all TOC results; and
- (2) the average of the last four TOC results.

(d) If the GRRP exceeds the limit in subsection (c)(1) or its approved increased TOC limit obtained pursuant to section 60320.130(c), based on a 20-week running average, a project sponsor shall take the following actions upon being notified of the results:

(1) immediately suspend the addition of recycled municipal wastewater until at least two consecutive results, three days apart, are less than the limit;

(2) notify the Department and Regional Board within seven days of suspension;  
and

(3) within 60 days, submit a report to the Department and Regional Board describing the reasons for the exceedance and the corrective actions to avoid future exceedances. At a minimum, the corrective actions shall include;

- (A) a reduction of RWC sufficient to comply with the limit, and/or
- (B) additional treatment demonstrated to the Department to remove TOC and chemicals or contaminants of concern to public health.

(e) If the GRRP exceeds the limit in subsection (c)(2) or its approved increased TOC limit obtained pursuant to section 60320.130(c), based on the average of the last four results, a project sponsor shall, within 60 days of being notified of the results, submit a report to the Department and Regional Board describing the reasons for the exceedance and the corrective actions taken to avoid future exceedances.

(f) Prior to a GRRP beginning initial operation and at five-year intervals thereafter, a project sponsor shall conduct a study to determine the occurrence of indicator compounds in the recycled municipal wastewater to be applied at the GRRP. Following completion of the study, a project sponsor shall propose at least three

indicator compounds for use in meeting subsection (g). The protocol for the occurrence study, the study's results, and the indicator compounds to be used shall be reviewed and approved by the Department.

(g) Quarterly, a project sponsor shall monitor the GRRP's recycled municipal wastewater or recharge water prior to the SAT process and the water after the SAT process, but at a point no farther than 30 days downgradient of the spreading area. The monitoring shall include at least three indicator compounds based on the results of an occurrence study approved by the Department. If the monitoring results do not indicate a reduction of at least 90 percent in the concentration of indicator compounds by the SAT, excluding the effects of dilution from diluent water that may be present, a project sponsor shall investigate the reason for the low reduction and report the indicator compound and investigative results within 90 days of receipt of the analytical results.

(h) If the result of the investigation in subsection (g) concludes that the 90 percent reduction could not be demonstrated because the concentration of indicator compounds prior to the SAT process was not sufficient, a project sponsor shall consult with the Department and comply with an alternative monitoring plan approved by the Department. If a project sponsor demonstrates that there are not three compounds available and suitable for indicating a 90 percent reduction pursuant to subsection (g), a project sponsor may utilize an indicator compound that achieves a reduction less than 90 percent, with Department approval of the alternative indicator compound and reduction criteria.

(i) To use one or more wastewater chemicals in lieu of TOC, a project sponsor shall obtain approval from the Department. At a minimum, the chemical(s) used in lieu of TOC shall:

(1) be quantifiable in the wastewater, recycled municipal wastewater, groundwater, and throughout the treatment processes; and

(2) have identifiable treatment performance standards as protective of public health as the TOC standards in this Article.

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

**(36) Adopt Section 60320.120 as follows:**

**§60320.120. Additional Chemical and Contaminant Monitoring.**

(a) Each quarter, the GRRP's project sponsor shall sample and analyze the recycled municipal wastewater and the groundwater (from the downgradient monitoring wells established pursuant to section 60320.126) 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 Department, based on the Department's review of the GRRP's engineering report; and

(2) Chemicals that the Department has specified, based on a review of the GRRP's engineering report, the affected groundwater basin(s), and the results of the assessment performed pursuant to section 60320.106(b)(1).

(b) Each quarter, the GRRP's project sponsor shall sample and analyze the recycled municipal wastewater for Department-specified chemicals having notification levels (NLs). Recharge water (including recharge water after surface application) may be monitored in lieu of recycled municipal wastewater if the fraction of recycled municipal wastewater in the recharge water is equal to or greater than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter. If the fraction of recycled municipal wastewater in the recharge water being monitored is less than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter, the reported value shall be adjusted to exclude the effects of dilution. If a result exceeds a NL, within 72 hours of notification of the result a project sponsor 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 GRRP shall initiate weekly monitoring for the contaminant until the running four-week average no longer exceeds the NL.

(1) If the running four-week average exceeds the contaminant's NL, a project sponsor 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 Department.

(2) If the running four-week average exceeds the contaminant's NL for sixteen consecutive weeks, a project sponsor shall notify the Department and Regional Board within 48 hours of knowledge of the exceedance.

(c) A project sponsor may reduce monitoring for the chemicals in this section to once each year following Department approval based on the Department's review of the most recent two years of results of the monitoring performed pursuant to this section.

(d) Annually, a project sponsor shall monitor the recycled municipal wastewater for indicator compounds specified by the Department and Regional Board based on the following:

- (1) a review of the GRRP's engineering report;
- (2) the inventory developed pursuant to section 60320.106(b)(4);
- (3) the affected groundwater basin(s);
- (4) an indicator compound's ability to characterize the presence of pharmaceuticals, endocrine disrupting chemicals, personal care products, and other indicators of the presence of municipal wastewater; and
- (5) 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 Department and Regional Board no later than the quarter following the quarter in which the results are received by the GRRP's project sponsor.

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

**(37) Adopt Section 60320.122 as follows:**

**§60320.122. Operation Optimization and Plan.**

(a) Prior to operation of a GRRP, a project sponsor shall submit an Operation Optimization Plan to the Department and Regional Board for review and approval. At a minimum, the Operation Optimization Plan shall identify and describe the operations, maintenance, analytical methods, monitoring necessary for the GRRP to meet the requirements of this Article, and the reporting of monitoring results to the Department and Regional Board. A project sponsor shall be responsible for ensuring that the Operation Optimization Plan is, at all times, representative of the current operations, maintenance, and monitoring of the GRRP. A GRRP's project sponsor shall make the Operation Optimization Plan available to the Department or Regional Board for review upon request.

(b) During the first year of operation of a GRRP and at all times thereafter, all treatment processes shall be operated in a manner providing optimal reduction of all chemicals and contaminants including:

- (1) microbial contaminants;
- (2) regulated contaminants identified in section 60320.112 and the nitrogen compounds required pursuant to section 60320.110; and
- (3) chemicals and contaminants required pursuant to section 60320.120.

(c) Within six months of optimizing treatment processes pursuant to subsection (b) and anytime thereafter operations are optimized that result in a change in operation, a project sponsor shall update the GRRP's Operation Optimization Plan to include such changes in operational procedures and submit the operations plan to the Department for review.

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

**(38) Adopt Section 60320.124 as follows:**

**§60320.124. Response Retention Time.**

(a) The recycled municipal wastewater applied by a GRRP shall be retained underground for a period of time necessary to allow a project sponsor sufficient response time to identify treatment failures and implement actions, including those required pursuant to section 60320.100(b), necessary for the protection of public health.

(b) The response retention time required in subsection (a) must be approved by the Department, based on information provided in the engineering report required pursuant to section 60323. The response retention time shall be no less than two months.

(c) To demonstrate the retention time underground is no less than the response retention time approved pursuant to subsection (b), a tracer study utilizing an added tracer shall be implemented under hydraulic conditions representative of normal GRRP operations. With Department approval, an intrinsic tracer may be used in lieu of an added tracer. For each month of retention time estimated utilizing the approved intrinsic tracer, a project sponsor shall receive no more than 0.67 months credit. The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reaches the monitoring point. A project sponsor for a GRRP shall initiate the tracer study prior to the end of the third month of operation. A project sponsor for a GRRP permitted on or before *[insert effective date]* that has not performed a tracer study shall complete a tracer study demonstrating the retention time underground.

(d) For the purpose of siting a GRRP location during project planning and until a GRRP's project sponsor has met the requirements of subsection (c), for each month of retention time estimated using the method in column 1, the recycled municipal wastewater or recharge water may be credited with no more than the corresponding response time in column 2 of Table 60320.124.

**Table 60320.124**

<b><u>Column 1</u></b>	<b><u>Column 2</u></b>
<b><u>Method used to estimate the retention time</u></b>	<b><u>Response Time Credit per Month</u></b>
<u>Tracer study utilizing an added tracer.<sup>1</sup></u>	<u>1.0 month</u>
<u>Tracer study utilizing an intrinsic tracer.<sup>1</sup></u>	<u>0.67 month</u>
<u>Numerical modeling consisting of calibrated finite element or finite difference models using validated and verified computer codes used for simulating groundwater flow.</u>	<u>0.50 month</u>
<u>Analytical modeling using existing academically-accepted equations such as Darcy's Law to estimate groundwater flow conditions based on simplifying aquifer assumptions.</u>	<u>0.25 month</u>

<sup>1</sup> The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reaches the monitoring point.

(e) A project sponsor shall obtain Department approval for the protocol(s) to be used to establish the retention times in subsections (c) and (d).

(f) Upon request from the Department, a project sponsor shall demonstrate that the underground retention times required in this section are being met based on changes in hydrogeological or climatic conditions since the most recent demonstration.

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

**(39) Adopt Section 60320.126 as follows:**

**§60320.126. Monitoring Well Requirements.**

(a) Prior to operating a GRRP, a project sponsor shall site and construct at least two monitoring wells downgradient of the GRRP such that:

(1) at least one monitoring well is located;

(A) no less than two weeks but no more than six months of travel through the saturated zone affected by the GRRP, and

(B) at least 30 days upgradient of the nearest drinking water well;

(2) in addition to the well(s) in paragraph (1) and after consultation with the Department, at least one monitoring well is located between the GRRP and the nearest downgradient drinking water well; and

(3) samples from the monitoring wells in paragraphs (1) and (2) can be;

(A) obtained independently from each aquifer, initially receiving the water used as a source of drinking water supply, that will receive the GRRP's recharge water, and

(B) validated as receiving recharge water from the GRRP.

(b) In addition to the monitoring required pursuant to section 60320.120, from each monitoring well in subsection (a)(1), and each monitoring well in subsection (a)(2) that has recharge water located within one year travel time of the well(s), a project

sponsor shall collect two samples prior to GRRP operation and at least one sample each quarter after operation begins. Each sample shall be analyzed for total nitrogen, nitrate, nitrite, the contaminants in Tables 64449-A and B of section 64449, and any contaminants and chemicals specified by the Department or Regional Board based on the results of the recycled municipal wastewater monitoring conducted pursuant to this Article.

(c) If a result from the monitoring conducted pursuant to subsection (b) exceeds 80 percent of a nitrate, nitrite, or nitrate plus nitrite MCL a project sponsor shall, within 48 hours of being notified of the result by the laboratory, collect another sample and have it analyzed for the contaminant. If the average of the result of the initial sample and the confirmation sample exceed the contaminant's MCL, a project sponsor shall:

(1) within 24 hours of being notified by the laboratory of the confirmation sample result, notify the Department and Regional Board; and

(2) discontinue surface application of recycled municipal wastewater until corrective actions have been taken or evidence is provided to the Department and Regional Board that the contamination was not a result of the GRRP.

(d) For Department-specified chemical analyses completed in a month, a project sponsor shall ensure the laboratory electronically submits results to the Department no later than 45 days after the end of the month in which monitoring occurred, in a manner such that data is readily uploaded into the Department's database. Utilization of the process described on the Department's Web site will satisfy this requirement.

(e) The GRRP's project sponsor may reduce monitoring for the chemicals and contaminants in subsection (b) to once each year following Department approval based on the Department's review of the most recent two years of monitoring results.

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

**(40) Adopt Section 60320.128 as follows:**

**§60320.128. Reporting.**

(a) No later than six months after the end of each calendar year, a project sponsor shall provide a report to the Department and Regional Board. Public water systems and drinking water well owners having downgradient sources potentially affected by the GRRP and within 10 years groundwater travel time from the GRRP 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. The report shall include the following:

(1) A summary of the GRRP's 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 surface application of recycled municipal wastewater 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 wells and diluent water supplies;

(4) Information pertaining to the vertical and horizontal migration of the recharge water plume;

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

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

(7) The estimated quantity and quality of the recycled municipal wastewater and diluent water to be applied for the next calendar year;

(8) A summary of the measures taken to comply with section 60320.106 and 60320.100(j), and the effectiveness of the implementation of the measures; and

(9) Increases in RWC during the previous calendar year and RWC increases anticipated for the next calendar year.

(b) Every five years from the date of the initial approval of the engineering report required pursuant to section 60323, a project sponsor shall update the report to address any project changes and submit the report to the Department and Regional Board. The update shall include, but not be limited to:

(1) anticipated RWC increases, a description of how the RWC requirements in section 60320.116 will be met, and the expected impact the increase will have on the GRRP's ability to meet the requirements of this Article;

(2) evidence that the requirements associated with retention time in section 60320.108, if applicable, and section 60320.124 have been met; and

(3) a description of any inconsistencies between previous groundwater model predictions and the observed and/or measured values, as well as a description of how subsequent predictions will be accurately determined.

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

**(41) Adopt Section 60320.130 as follows:**

**§60320.130. Alternatives.**

(a) A project sponsor may use an alternative to a requirement in this Article if the GRRP's project sponsor:

(1) demonstrates to the Department that the proposed alternative assures at least the same level of protection to public health;

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

(3) if required by the Department or Regional Board, conducts a public hearing on the proposed alternative, disseminates information to the public, and receives public comments, pursuant to sections 60320.102(b) and (c).



(b) Unless specified otherwise by the Department, the demonstration in subsection (a)(1) shall include the results of a review of the proposed alternative by an independent scientific advisory panel that includes a toxicologist, a registered engineering geologist or hydrogeologist, 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.

(c) The TOC limit specified in section 60320.118(c) may be increased if:

(1) The increased TOC limit is approved by the Department and Regional Board;

(2) The GRRP has been in operation for the most recent ten consecutive years;

(3) A project sponsor submits a proposal to the Department prepared and signed by an engineer licensed in California with at least three years of experience in the fields of wastewater treatment and public water supply. The proposal shall include the following, based on the most recent ten consecutive years of operation;

(A) GRRP operations, monitoring, and compliance data,

(B) Evidence that the GRRP has a history of compliance with the requirements of their Regional Board permit,

(C) Evidence that the water collected at all downgradient drinking water wells and monitoring wells impacted by the GRRP has met the primary drinking water standards,

(D) Analytical or treatment studies requested by the Department to make the determination in subparagraph (C),

(E) Validation of appropriate construction and siting of monitoring wells pursuant to section 60320.126(a), and

(F) A study defining the water quality changes, including organic carbon characterization, as a result of the impact of the GRRP; and

(4) A project sponsor performs a health effects evaluation that assesses the health risks to consumers of water impacted by the GRRP, including any anticipated water quality changes resulting from the proposed increased TOC limit. The evaluation shall include the following;

(A) An exposure assessment that characterizes the quality of the water consumed and the quantity of contaminants and chemicals consumed,

(B) All available human epidemiologic studies of the population that has consumed water impacted by the GRRP,

(C) The results of laboratory animal studies and health risk assessments available in peer-reviewed literature pertaining to water impacted by the GRRP and anticipated water quality changes resulting from the proposed increased TOC, including studies or assessments where extrapolation of data may be relevant,

(D) A health risk assessment of the potential individual and cumulative effects of each of the regulated contaminants identified in section 62320.112, and the chemicals or contaminants monitored pursuant to sections 60320.120(a) and (c), that includes;

1. lifetime risks of cancer, and
2. risks of non-cancer effects, and

(E) A report detailing comments, questions, concerns, and conclusions of a review by an independent scientific peer review advisory panel that includes, as a minimum, a toxicologist, an epidemiologist, an engineering geologist or hydrogeologist registered in California, an engineer licensed in California with at least three years of experience in wastewater treatment and public water supply, a microbiologist, and a chemist.

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

**ARTICLE 5.2. Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application**

**(42) Adopt Section 60320.200 as follows:**

**§60320.200. General Requirements.**

(a) The requirements of this Article apply to Groundwater Replenishment Reuse Projects (GRRPs) utilizing subsurface application, which receive initial permits from the Regional Board after [insert effective date]. Within 12 months after [insert effective date] a project sponsor for a GRRP permitted on or before [insert effective date] shall submit a report to the Department and appropriate Regional Board assessing its compliance with the requirements of this Article. For each requirement considered noncompliant and applicable by the Department or Regional Board, a project sponsor shall submit a schedule to the Department and Regional Board, for demonstrating and/or achieving compliance with the applicable requirements of this Article. Unless directed otherwise by the Department, a project sponsor's report for a GRRP permitted on or before [insert effective date] need not assess compliance with requirements of this Article that are required to be met prior to operation of a GRRP, except subsection (b) of this section. The report is subject to review and approval by the Department and Regional Board. A project sponsor shall ensure the GRRP continuously treats, with full advanced treatment meeting the criteria in section 60320.201, the entire recycled municipal wastewater stream prior to application.

(b) Prior to operation of a GRRP, the GRRP's project sponsor shall obtain Department approval of a plan describing the steps a project sponsor will take to provide an alternative source of drinking water supply to all users of a producing drinking water well, or a Department-approved treatment mechanism a project sponsor will provide to all owners of a producing drinking water well, that as a result of the GRRP's operation, as determined by the Department:

(1) violates a California or federal drinking water standard;

(2) has been degraded to the degree that it is no longer a safe source of drinking water; or

(3) receives water that fails to meet section 60320.208.

(c) Prior to operating a GRRP, a project sponsor shall collect at least four samples, at least one sample each quarter, from each potentially affected aquifer. The samples shall be representative of water in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to sections 60320.210, 60320.212, 60320.218, and 60320.220.

(d) A GRRP's recycled municipal wastewater shall be retained underground for a period of time no less than the retention time required pursuant to sections 60320.208 and 60320.224. The GRRP shall be designed and operated in a manner that ensures water treated pursuant to this Article, beyond the boundary described in subsection (e)(2), meets the recycled municipal wastewater contributions (RWC) requirements in section 60320.216.

(e) Based on hydrogeologic flowpaths, a GRRP's project sponsor shall provide the Department, Regional Board, and local well-permitting authorities a map of the GRRP 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 the criteria in paragraphs (1) – (4) below. A revised map shall be prepared and provided when conditions change such that the previous map no longer accurately reflects current conditions.

(1) the location and boundaries of the GRRP;

(2) a boundary representing a zone of controlled drinking water well construction, the greatest of the horizontal and vertical distances reflecting the retention times required pursuant to sections 60320.208 and 60320.224;

(3) a secondary boundary representing a zone of potential controlled drinking water well construction, depicting the zone within which a well would extend the boundary in paragraph (2) to include existing or potential future drinking water wells,

thereby requiring further study and potential mitigating activities prior to drinking water well construction; and

(4) the location of all monitoring wells established pursuant to section 60320.226, and drinking water wells within two years travel time of the GRRP based on groundwater flow directions and velocities expected under GRRP operating conditions.

(f) Prior to operating a GRRP, a project sponsor shall demonstrate to the Department and Regional Board that a project sponsor possesses adequate managerial and technical capability to assure compliance with this Article.

(g) Prior to replenishing a groundwater basin or an aquifer with recycled municipal wastewater, a GRRP's project sponsor shall demonstrate that all treatment processes have been installed and can be operated by a project sponsor 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 section 60323.

(h) In the engineering report required pursuant to section 60323, a project sponsor for a GRRP shall include a hydrogeological assessment of the proposed GRRP's setting. The assessment shall include the following:

(1) the qualifications of the individual(s) preparing the assessment;

(2) a general description of geologic and hydrogeological setting of the groundwater basin(s) potentially directly impacted by the GRRP;

(3) a detailed description of the stratigraphy beneath the GRRP, including the composition, extent, and physical properties of the affected aquifers; and

(4) based on at least four rounds of consecutive quarterly monitoring to capture seasonal impacts:

(A) the existing hydrogeology and the hydrogeology anticipated as a result of the operation of the GRRP, and

(B) maps showing quarterly groundwater elevation contours, along with vector flow directions and calculated hydraulic gradients.

(i) If a project sponsor fails to complete compliance monitoring required pursuant to this Article, the Regional Board may determine water quality-related compliance based on available data.

(j) A project sponsor shall ensure that the recycled municipal wastewater used for a GRRP shall be from a wastewater management agency that is not in violation of the effluent limits pertaining to groundwater replenishment pursuant to this Article, as established in the wastewater management agency's Regional Board permit.

(k) If a project sponsor has been directed by the Department or Regional Board to suspend subsurface application pursuant to this Article, subsurface application shall not resume until the project sponsor has obtained Department and Regional Board approval.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(43) Adopt Section 60320.201 as follows:**

**§60320.201. Advanced Treatment Criteria.**

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 project sponsor shall select for use a reverse osmosis membrane such that:  
(1) each membrane element used in the project 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 (2008) using the following substitute test conditions:

(A) tests are operated at a recovery 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; and

(D) an influent sodium chloride concentration of no greater than 2,000 mg/L, to be verified prior to the start of testing; 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, as verified through monitoring no less frequent than weekly.

(b) For the reverse osmosis treatment process, a project sponsor shall propose, for Department review and approval, on-going performance monitoring (e.g., conductivity or TOC) 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 process has been designed for implementation, a project sponsor shall:

(1) Perform an occurrence study on the project's municipal wastewater to identify indicator compounds and select a total of at least nine indicator compounds, with at least one from each of the functional groups in subparagraphs (A) through (I) below. A project sponsor shall submit an occurrence study protocol, as well as the subsequent results and chosen indicator compounds, to the Department for review and approval.

(A) Hydroxy Aromatic

(B) Amino/Acylamino Aromatic

(C) Nonaromatic with carbon double bonds

(D) Deprotonated Amine

(E) Alkoxy Polyaromatic

(F) Alkoxy Aromatic

(G) Alkyl Aromatic

(H) Saturated Aliphatic

(I) Nitro Aromatic

(2) Utilize an oxidation process that achieves optimal removal of the indicator compounds selected in paragraph (1) such that removal is no less than;

(A) 0.5-log (69 percent) for each indicator compound representing the functional groups in paragraphs (1)(A) through (1)(G), and

(B) 0.3-log (50 percent) for each indicator compound representing the functional groups in paragraphs (1)(H) and (1)(I).

(3) Establish at least one surrogate or operational parameter that reflects the removal of at least five of the nine indicator compounds selected pursuant to paragraph (1) such that;

(A) at least one of the five indicator compounds represents at least one functional group in paragraphs (1)(A) through (1)(G),

(B) at least one of the five indicator compounds represents at least one functional group in paragraphs (1)(H) or (1)(I),

(C) at least one surrogate or operational parameter is capable of being monitored continuously, recorded, and have associated alarms, and

(D) a surrogate or operational parameter, including the parameter in subparagraph (C), is identified that indicates when the process may no longer meet the criteria established in paragraph (2).

(4) Conduct testing that includes confirmation of the findings of the occurrence study in paragraph (1) and provides evidence that the requirements of paragraphs (2) and (3) can be met with a full-scale oxidation process. The testing shall include challenge or spiking tests conducted to determine the removal differential under normal operating conditions utilizing, at minimum, the nine indicator compounds identified in paragraph (1). A project sponsor shall submit a testing protocol, as well as the subsequent results, to the Department for review and approval.



(d) In lieu of demonstrating that a sufficient oxidation process has been designed for implementation pursuant to subsection (c), a project sponsor may conduct testing demonstrating that the oxidation process will provide no less than 0.5-log (69 percent) reduction of 1,4-dioxane.

(1) A project sponsor shall submit a testing protocol, as well as the subsequent results, to the Department for review and approval. The testing shall include challenge or spiking tests, using 1,4-dioxane, to demonstrate the proposed oxidation process will achieve the minimum 0.5-log reduction under the proposed oxidation process's normal full-scale operating conditions.

(2) A project sponsor shall establish surrogate and/or operational parameters that reflect whether the minimum 0.5-log 1,4-dioxane reduction design criteria 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.

(e) During the full-scale operation of the oxidation process designed pursuant to subsection (c) or (d), a project sponsor shall continuously monitor the surrogate and/or operational parameters established pursuant to subsection (c)(3)(C) or (d)(2), as applicable. A project sponsor shall implement, in full-scale operation, the oxidation process as designed pursuant to subsection (c) or (d).

(f) Within 60 days after completing the initial 12-months of monitoring pursuant to subsection (e), a project sponsor shall submit a report to the Department and Regional Board that includes:

(1) the results of the monitoring performed in subsection (e);  
(2) the removal differential of the indicator compounds;  
(3) a description of the efficacy of the surrogate and/or operational parameters to reflect the removal differential of the indicator compounds; and

(4) a description of actions taken, or to be taken, if the indicator compound removal did not meet the associated design criteria in subsection (c) or (d), the

continuous surrogate and/or operational parameter monitoring in subsection (c)(3)(C) or (d)(2) fails to correspond to the differential indicator compound removal, or the surrogate and/or operational parameter established in subsection (c)(3)(D) or (d)(2) is not met.

(g) Within 60 days after completing the initial 12 months of operation of the reverse osmosis process, a project sponsor shall submit a report to the Department and Regional Board describing the effectiveness of the treatment, process failures, and actions taken in the event the on-going monitoring in subsection (b) indicated that process integrity was compromised.

(h) Each quarter, a project sponsor shall calculate what percent of results of the quarter's monitoring, conducted pursuant to subsections (b) and (e), 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 45 days after the end of the quarter a project sponsor shall:

(1) submit a report to the Department and Regional Board describing the corrective actions planned or taken to reduce the percent to ten percent (10%) or less; and

(2) consult with the Department and, if required, comply with an alternative monitoring plan approved by the Department.

(i) Each month a project sponsor shall collect samples (grab or composite) representative of the effluent of the advanced treatment process 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 project sponsor may apply for a reduced monitoring frequency. The reduced monitoring frequency shall be no less than quarterly. Monitoring conducted pursuant to this subsection may be used in lieu of the monitoring (for the same contaminants) required pursuant to sections 60320.212 and 60320.220. The effluent of the advanced treatment process shall not exceed an MCL.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(44) Adopt Section 60320.202 as follows:**

**§60320.202. Public Hearing.**

(a) A public hearing for a GRRP shall be held by a project sponsor prior to the Department's submittal of its recommendations to the Regional Board for the GRRP's initial permit and any time an increase in maximum RWC has been proposed but not addressed in a prior public hearing. Prior to a public hearing conducted pursuant to this section, a project sponsor shall provide the Department, for its review and approval, the information a project sponsor intends to present at the hearing. Following the Department's approval of the information, a project sponsor shall place the information on a project sponsor's Web site and in a repository that provides at least 30 days of public access to the information prior to the public hearing.

(b) Prior to placing the information required pursuant to subsection (a) in a repository, a project sponsor shall:

(1) Notify the public of the following:

(A) the location and hours of operation of the repository,

(B) the Internet address where the information may be viewed,

(C) the purpose of the repository and public hearing,

(D) the manner in which the public can provide comments, and

(E) the date, time, and location of the public hearing; and

(2) At a minimum, notify the first downgradient drinking water well owner and well owners whose drinking water well is within 10 years from the GRRP based on groundwater flow directions and velocities.

(c) Unless directed otherwise by the Department, the public notification made pursuant to subsection (b)(2) shall be by direct mail and the notification made pursuant to subsection (b)(1) shall be delivered in a manner to reach persons whose source of drinking water may be impacted by the GRRP, using one or more of the following methods:

- (1) local newspaper(s) publication of general circulation;
- (2) mailed or direct delivery of a newsletter;
- (3) conspicuously placed statement in water bills; and/or
- (4) television and/or radio.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(45) Adopt Section 60320.204 as follows:**

**§60320.204. Lab Analyses.**

(a) Analyses for contaminants having primary or secondary MCLs shall be performed by laboratories approved to perform such analyses by the Department utilizing Department-approved drinking water methods.

(b) Analyses for chemicals other than those having primary or secondary MCLs shall be described in the GRRP's Operation Optimization Plan prepared pursuant to section 60320.222.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(46) Adopt Section 60320.206 as follows:**

**§60320.206. Wastewater Source Control.**

A project sponsor shall ensure that the recycled municipal wastewater used for a GRRP 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 Department-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 Department-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 GRRP, 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 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, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(47) Adopt Section 60320.208 as follows:**

**§60320.208. Pathogenic Microorganism Control.**

(a) A project sponsor shall design and operate a GRRP such that the recycled municipal wastewater used as recharge water for a GRRP receives treatment that achieves at least 12-log enteric virus reduction, 10-log Giardia cyst reduction, and 10-log Cryptosporidium oocyst reduction. The treatment train shall consist of at least three separate treatment processes. For each pathogen (i.e., virus, Giardia cyst, or Cryptosporidium oocyst), a separate treatment process may be credited with no more than 6-log reduction, with at least three processes each being credited with no less than 1.0-log reduction.

(b) For each month retained underground as demonstrated in subsection (e), the recycled municipal wastewater or recharge water will be credited with 1-log virus reduction.

(c) With the exception of log reduction credited pursuant to subsection (b), a project sponsor 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 Department's review and approval, or by using a challenge test approved by the Department, 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 an 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. With the exception of retention time underground, a project sponsor shall propose and include in its Operation Optimization Plan prepared pursuant to section 60320.222, 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.

(d) To demonstrate the retention time underground in subsection (b) a tracer study utilizing an added tracer shall be implemented under hydraulic conditions representative of normal GRRP operations. The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reached the monitoring point. A project sponsor for a GRRP shall initiate the tracer study prior to the end of the third month of operation. A project sponsor for a GRRP permitted on or before *[insert effective date]* that has not already performed such a tracer study shall complete a tracer study demonstrating the retention time underground. With Department approval, an intrinsic tracer may be used in lieu of an added tracer, with no more credit provided than the corresponding virus log reduction in column 2 of Table 60320.208.

(e) For the purpose of siting a GRRP location during project planning and until a GRRP's project sponsor has met the requirements of subsection (d), for each month of retention time estimated using the method in column 1, the recycled municipal wastewater or recharge water shall be credited with no more than the corresponding virus log reduction in column 2 of Table 60320.208.

**Table 60320.208**

<b><u>Column 1</u></b>	<b><u>Column 2</u></b>
<b><u>Method used to estimate the retention time to the nearest downgradient drinking water well</u></b>	<b><u>Virus Log Reduction Credit per Month</u></b>
<u>Tracer study utilizing an added tracer.<sup>1</sup></u>	<u>1.0 log</u>
<u>Tracer study utilizing an intrinsic tracer.<sup>1</sup></u>	<u>0.67 log</u>
<u>Numerical modeling consisting of calibrated finite element or finite difference models using validated and verified computer codes used for simulating groundwater flow.</u>	<u>0.50 log</u>
<u>Analytical modeling using existing academically-accepted equations such as Darcy's Law to estimate groundwater flow conditions based on simplifying aquifer assumptions.</u>	<u>0.25 log</u>

<sup>1</sup> The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reached the monitoring point.

(f) A project sponsor shall obtain Department approval for the protocol(s) to be used to establish the retention times in subsections (d) and (e).



(g) Based on changes in hydrogeological or climatic conditions since the most recent demonstration, the Department may require a GRRP's project sponsor to demonstrate that the underground retention times required in this section are being met.

(h) If a pathogen reduction in subsection (a) is not met based on the on-going monitoring required pursuant to subsection (c), within 24 hours of being aware a project sponsor shall immediately investigate the cause and initiate corrective actions. The project sponsor shall immediately notify the Department and Regional Board if the GRRP fails to meet the pathogen reduction criteria longer than 4 consecutive hours, or more than a total of 8 hours during any 7-day period. Failures of shorter duration shall be reported to the Regional Board by a project sponsor no later than 10 days after the month in which the failure occurred.

(i) If the effectiveness of a treatment train's ability to reduce enteric virus is less than 10-logs, or Giardia cyst or Cryptosporidium oocyst reduction is less than 8-logs, a project sponsor shall immediately notify the Department and Regional Board, and discontinue application of recycled municipal wastewater at the GRRP, unless directed otherwise by the Department or Regional Board.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(48) Adopt Section 60320.210 as follows:**

**§60320.210. Nitrogen Compounds Control.**

(a) To demonstrate control of the nitrogen compounds, a project sponsor shall:  
(1) Each week, at least three days apart as specified in the GRRP's Operation Optimization Plan, collect at least two total nitrogen samples (grab or 24-hour composite) representative of the recycled municipal wastewater or recharge water applied. Samples may be collected before or after subsurface application;

(2) Have the samples collected pursuant to paragraph (1) analyzed for total nitrogen, with the laboratory being required by a project sponsor to complete each analysis within 72 hours and have the result reported to a project sponsor within the same 72 hours if the result of any single sample exceeds 10 mg/L;

(3) If the average of the results of two consecutive samples collected pursuant to paragraph (1) exceeds 10 mg/L total nitrogen;

(A) take a confirmation sample and notify the Department and the Regional Board within 48 hours of being notified of the results by the laboratory,

(B) investigate the cause for the exceedances and take actions to reduce the total nitrogen concentrations to ensure continued or future exceedances do not occur, and

(C) initiate additional monitoring for nitrogen compounds as described in the GRRP's Operation Optimization Plan, including locations in the groundwater basin, to identify elevated concentrations and determine whether such elevated concentrations exceed or may lead to an exceedance of a nitrogen-based MCL; and

(4) If the average of the results of four consecutive samples collected pursuant to paragraph (1) exceeds 10 mg/L total nitrogen, suspend the subsurface application of recycled municipal wastewater. Subsurface application shall not resume until corrective actions have been taken and at least two consecutive total nitrogen sampling results are less than 10 mg/L.

(b) Following Department and Regional Board approval, a project sponsor may initiate reduced monitoring frequencies for total nitrogen. A project sponsor may apply to the Department and Regional Board for reduced monitoring frequencies for total nitrogen if, for the most recent 12 months:

(1) the average of all results did not exceed 5 mg/L total nitrogen; and

(2) the average of a result and its confirmation sample (taken within 24 hours of receipt of the initial result) did not exceed 10 mg/L total nitrogen.

(c) If the results of reduced monitoring conducted as approved pursuant to subsection (b) exceed the total nitrogen concentration criteria in subsection (b), a

project sponsor shall revert to the monitoring frequencies for total nitrogen prior to implementation of the reduced frequencies. Reduced frequency monitoring shall not resume unless the requirements of subsection (b) are met.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(49) Adopt Section 60320.212 as follows:**

**§60320.212. Regulated Contaminants and Physical Characteristics Control.**

(a) Each quarter, as specified in the GRRP's Operation Optimization Plan, a project sponsor shall collect samples (grab or 24-hour composite) representative of the applied recycled municipal wastewater and have the samples analyzed for:

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

(b) Recharge water may be monitored in lieu of recycled municipal wastewater to satisfy the monitoring requirements in subsection (a)(4) if the fraction of recycled municipal wastewater in the recharge water is equal to or greater than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter. If the fraction of recycled municipal wastewater in the recharge water being monitored is less than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter, the reported value shall be adjusted to exclude the effects of dilution.

(c) Each year, the GRRP's project sponsor shall collect at least one representative sample (grab or 24-hour composite) of the recycled municipal

wastewater and have the sample(s) analyzed for the secondary drinking water contaminants in Tables 64449-A and 64449-B.

(d) If a result of the monitoring performed pursuant to subsection (a) exceeds a contaminant's MCL or action level (for lead and copper), a project sponsor shall collect another sample within 72 hours of notification of the result and then 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 GRRP's project sponsor shall notify the Department 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 the running four-week average exceeds the contaminant's MCL or action level, the GRRP's project sponsor shall notify the Department and Regional Board within 24 hours and, if directed by the Department or Regional Board, suspend application of the recycled municipal wastewater.

(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 GRRP shall initiate weekly monitoring for the contaminant until the running four-week average no longer exceeds the contaminant's MCL.

(A) If the running four-week average exceeds the contaminant's MCL, a project sponsor shall describe the reason(s) for the exceedance and provide a schedule for completion of corrective actions in a report submitted to the Department 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 project sponsor shall notify the Department and Regional Board within 48 hours of knowledge of the exceedance and, if directed by the Department or Regional Board, suspend application of the recycled municipal wastewater.

(e) If the annual average of the results of the monitoring performed pursuant to subsection (c) exceeds a contaminant's secondary MCL in Table 64449-A or the upper limit in Table 64449-B, a project sponsor 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 Department. The annual monitoring in subsection (c) may resume if the running annual average of quarterly results does not exceed a contaminant's secondary MCL or upper limit.

(f) 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, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(50) Adopt Section 60320.214 as follows:**

**§60320.214. Diluent Water Requirements.**

To be credited with diluent water used in calculating an RWC pursuant to section 60320.216, the GRRP shall comply with the requirements of this section and receive Department approval. For diluent water that is a Department-approved drinking water source, the GRRP's project sponsor is exempt from subsections (a) and (b). The GRRP's project sponsor shall:

(a) Monitor the diluent water quarterly for nitrate and nitrite and, within 72 hours of being informed by the laboratory of a nitrate, nitrite, or nitrate plus nitrite result

exceeding a maximum contaminant level (MCL), collect a confirmation sample. If the average of the two samples is greater than an MCL:

(1) notify the Department and the Regional Board within 48 hours of receiving the confirmation sample result,

(2) investigate the cause(s) and implement corrective actions, and

(3) each week, collect and analyze two grab samples at least three days apart as specified in the GRRP's Operation Optimization Plan. If the average of the results for a two-week period exceeds the MCL, subsurface application of the diluent water shall not be used in the calculation of RWC until corrective actions are made. Quarterly monitoring may resume if four consecutive results are below the MCL.

(b) Conduct a source water evaluation per the California-Nevada Section of American Water Works Association's Watershed Sanitary Survey Guidance Manual (1993), as it may be amended, or other Department-approved evaluation, of the diluent water for Department review and approval that includes, but is not limited to:

(1) a description of the source of the diluent water;

(2) delineation of the origin and extent of the diluent water;

(3) the susceptibility of the diluent water to contamination;

(4) the identification of known or potential contaminants; and

(5) an inventory of the potential sources of diluent water contamination.

(c) Ensure diluent water does not exceed a primary MCL, a secondary MCL upper limit, or a notification level (NL), and implement a Department-approved water quality monitoring plan for Department-specified contaminants to demonstrate compliance with the primary MCLs, secondary MCLs, and NLs. The plan shall also include:

(1) except for Department-approved drinking water sources used as a diluent water, monitoring of any chemicals or contaminants required pursuant to section 60320.220, based on the source water evaluation performed in subsection (b); and

(2) actions to be taken in the event of non-compliance with a primary MCL, secondary MCL, or exceedance of a NL.

(d) Develop a method for determining the volume of diluent water to be credited and demonstrate that the diluent water will be introduced in a manner such that the diluent water volume will not result in the GRRP's 120-month running monthly average RWC exceeding its maximum RWC at or beyond the boundary established pursuant to section 60320.200(e)(2). The method shall be submitted to the Department for review and approval, and be conducted at a frequency specified in the engineering report prepared pursuant to section 60323. The method shall address all conditions that influence how and when the recycled municipal wastewater and diluent water arrive at all points along the boundary. The conditions must include, but are not limited to, temporal variability in the diluent water supply and regional groundwater gradients, the difference in the distribution of the recycled municipal wastewater and diluent water between individual aquifers where more than one aquifer is replenished, and the difference in travel-time when recycled municipal wastewater and diluent water are introduced at different locations and/or times.

(e) For credit prior to the operation of the GRRP, but not to exceed 120 months:

(1) demonstrate that the diluent water met the nitrate, nitrite, and nitrate plus nitrite MCLs, NLs, and the water quality requirements in section 60320.212;

(2) provide evidence that the quantity of diluent water has been accurately determined and was distributed such that the proposed or permitted maximum RWC would not have been exceeded; and

(3) conduct a source water evaluation of the diluent water pursuant to subsection (b).

(f) In the Operation Optimization Plan prepared pursuant to section 60320.222, include a description of:

(1) how the diluent water will be distributed in a manner that ensures that the maximum RWC will not be exceeded during normal operations; and

(2) the actions to be taken in the event the diluent water is curtailed or is no longer available.

(g) If approved by the Department, recharge water may be monitored in lieu of a diluent water source if the diluent water source cannot be monitored directly in a manner that provides samples representative of the diluent water being applied.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(51) Adopt Section 60320.216 as follows:**

**§60320.216. Recycled Municipal Wastewater Contribution (RWC) Requirements.**

(a) Each month, for each subsurface application GRRP used for replenishing a groundwater basin, the GRRP's project sponsor shall calculate the running monthly average (RMA) RWC based on the total volume of the recycled municipal wastewater and credited diluent water for the preceding 120 months. For GRRPs in operation less than 120 months, calculation of the RMA RWC shall commence after 30 months of recycled municipal wastewater application, based on the total volume of the recycled municipal wastewater and credited diluent water introduced during the preceding months.

(b) The GRRP's RMA RWC, as determined in subsection (a), shall not exceed the maximum RWC specified for the GRRP by the Department.

(c) The initial maximum RWC, which may be up to 1.0, will be based on, but not limited to, the Department's review of the engineering report, information obtained as a result of the public hearing(s), and a project sponsor's demonstration that the treatment processes will reliably achieve TOC concentrations no greater than 0.5 mg/L.

(d) A GRRP may increase its maximum RWC, provided:

(1) the increase has been approved by the Department and Regional Board;



(2) for the previous 52 weeks the TOC 20-week running average, as monitored pursuant to section 62320.218, has not exceeded 0.5 mg/L; and

(3) the GRRP has received a permit from the Regional Board that allows operation of the GRRP at the increased maximum RWC.

(e) If the RMA RWC exceeds its maximum RWC, the GRRP's project sponsor shall:

(1) notify the Department and Regional Board in writing within seven days of knowledge of the exceedance; and

(2) within 60 days of knowledge of the exceedance, implement corrective action(s) and additional actions that may be required by the Department or Regional Board, and submit a report to the Department and Regional Board describing the reason(s) for the exceedance and the corrective action(s) taken to avoid future exceedances.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(52) Adopt Section 60320.218 as follows:**

**§60320.218. Total Organic Carbon Requirements.**

(a) For each subsurface application GRRP used for replenishing a groundwater basin, the GRRP's project sponsor shall monitor the applied recycled municipal wastewater for TOC as follows:

(1) Prior to replenishment, at least one 24-hour composite sample each week.

(2) Grab samples may be used in lieu of the 24-hour composite samples required in paragraph (1) if the GRRP demonstrates that a grab sample is representative of the water quality throughout a 24-hour period.

(b) Analytical results of the TOC monitoring performed pursuant to subsection (a) shall not exceed 0.5 mg/L based on:

(1) the 20-week running average of all TOC results; and

(2) the average of the last four TOC results.

(c) If the GRRP exceeds the limit in subsection (b)(1) based on a 20-week running average, a project sponsor shall take the following actions upon being notified of the results:

(1) immediately suspend the addition of recycled municipal wastewater until at least two consecutive results, three days apart, are less than the limit;

(2) notify the Department and Regional Board within seven days of suspension;  
and

(3) within 60 days, submit a report to the Department and Regional Board describing the reasons for the exceedance and the corrective actions to avoid future exceedances. At a minimum, the corrective actions shall include a reduction of RWC sufficient to comply with the limit.

(d) If the GRRP exceeds the limit in subsection (b)(2) based on the average of the last four results, a project sponsor shall, within 60 days of being notified of the results, submit a report to the Department and Regional Board describing the reasons for the exceedance and the corrective actions taken to avoid future exceedances.

(e) To use one or more wastewater chemicals in lieu of TOC, a project sponsor shall obtain approval from the Department. At a minimum, the chemical(s) used in lieu of TOC shall:

(1) be quantifiable in the wastewater, recycled municipal wastewater, groundwater, and throughout the treatment processes; and

(2) have identifiable treatment performance standards as protective of public health as the TOC standards in this Article.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(53) Adopt Section 60320.220 as follows:**

**§60320.220. Additional Chemical and Contaminant Monitoring.**

(a) Each quarter, the GRRP's project sponsor shall sample and analyze the recycled municipal wastewater and the groundwater (from the downgradient monitoring wells established pursuant to section 60320.226) 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 Department, based on the Department's review of the GRRP's engineering report; and

(2) Chemicals that the Department has specified, based on a review of the GRRP's engineering report, the affected groundwater basin(s), and the results of the assessment performed pursuant to section 60320.206(b)(1).

(b) Each quarter, the GRRP's project sponsor shall sample and analyze the recycled municipal wastewater for Department-specified chemicals having notification levels (NLs). Recharge water may be monitored in lieu of recycled municipal wastewater if the fraction of recycled municipal wastewater in the recharge water is equal to or greater than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter. If the fraction of recycled municipal wastewater in the recharge water being monitored is less than the average fraction of recycled municipal wastewater in the recharge water applied over the quarter, the reported value shall be adjusted to exclude the effects of dilution. If a result exceeds a NL, within 72 hours of notification of the result a project sponsor 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 GRRP shall initiate weekly

monitoring for the contaminant until the running four-week average no longer exceeds the NL.

(1) If the running four-week average exceeds the contaminant's NL, a project sponsor 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 Department.

(2) If the running four-week average exceeds the contaminant's NL for sixteen consecutive weeks, a project sponsor shall notify the Department and Regional Board within 48 hours of knowledge of the exceedance.

(c) A project sponsor may reduce monitoring for the chemicals in this section to once each year following Department approval based on the Department's review of the most recent two years of results of the monitoring performed pursuant to this section.

(d) Annually, a project sponsor shall monitor the recycled municipal wastewater for indicator compounds specified by the Department and Regional Board based on the following:

- (1) a review of the GRRP's engineering report;
- (2) the inventory developed pursuant to section 60320.206(b)(4);
- (3) the affected groundwater basin(s);
- (4) an indicator compound's ability to characterize the presence of pharmaceuticals, endocrine disrupting chemicals, personal care products, and other indicators of the presence of municipal wastewater; and
- (5) 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 Department and Regional Board no later than the quarter following the quarter in which the results are received by the GRRP's project sponsor.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(54) Adopt Section 60320.222 as follows:**

**§60320.222. Operation Optimization and Plan.**

(a) Prior to operation of a GRRP, a project sponsor shall submit an Operation Optimization Plan to the Department and Regional Board for review and approval. At a minimum, the Operation Optimization Plan shall identify and describe the operations, maintenance, analytical methods, monitoring necessary for the GRRP to meet the requirements of this Article, and the reporting of monitoring results to the Department and Regional Board. A project sponsor shall be responsible for ensuring that the Operation Optimization Plan is, at all times, representative of the current operations, maintenance, and monitoring of the GRRP. A GRRP's project sponsor shall make the Operation Optimization Plan available to the Department or Regional Board for review upon request.

(b) During the first year of operation of a GRRP and at all times thereafter, all treatment processes shall be operated in a manner providing optimal reduction of all chemicals and contaminants including:

- (1) microbial contaminants;
- (2) regulated contaminants identified in section 60320.212 and the nitrogen compounds required pursuant to section 60320.210; and
- (3) chemicals and contaminants required pursuant to section 60320.220.

(c) Within six months of optimizing treatment processes pursuant to subsection (b) and anytime thereafter operations are optimized that result in a change in operation, a project sponsor shall update the GRRP's Operation Optimization Plan to include such changes in operational procedures and submit the operations plan to the Department for review.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(55) Adopt Section 60320.224 as follows:**

**§60320.224. Response Retention Time.**

(a) The recycled municipal wastewater applied by a GRRP shall be retained underground for a period of time necessary to allow a project sponsor sufficient response time to identify treatment failures and implement actions, including those required pursuant to section 60320.200(b), necessary for the protection of public health.

(b) The response retention time required in subsection (a) must be approved by the Department, based on information provided in the engineering report required pursuant to section 60323. The response retention time shall be no less than two months.

(c) To demonstrate the retention time underground is no less than the response retention time approved pursuant to subsection (b), a tracer study utilizing an added tracer shall be implemented under hydraulic conditions representative of normal GRRP operations. With Department approval, an intrinsic tracer may be used in lieu of an added tracer. For each month of retention time estimated utilizing the approved intrinsic tracer, a project sponsor shall receive no more than 0.67 months credit. The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reaches the monitoring point. A project sponsor for a GRRP shall initiate the tracer study prior to the end of the third month of operation. A project sponsor for a GRRP permitted on or

before [\[insert effective date\]](#) that has not performed a tracer study shall complete a tracer study demonstrating the retention time underground.

(d) For the purpose of siting a GRRP location during project planning and until a GRRP’s project sponsor has met the requirements of subsection (c), for each month of retention time estimated using the method in column 1, the recycled municipal wastewater or recharge water may be credited with no more than the corresponding response time in column 2 of Table 60320.224.

**Table 60320.224**

<b><u>Column 1</u></b>	<b><u>Column 2</u></b>
<b><u>Method used to estimate the retention time</u></b>	<b><u>Response Time Credit per Month</u></b>
<u>Tracer study utilizing an added tracer.<sup>1</sup></u>	<u>1.0 month</u>
<u>Tracer study utilizing an intrinsic tracer.<sup>1</sup></u>	<u>0.67 month</u>
<u>Numerical modeling consisting of calibrated finite element or finite difference models using validated and verified computer codes used for simulating groundwater flow.</u>	<u>0.50 month</u>
<u>Analytical modeling using existing academically-accepted equations such as Darcy’s Law to estimate groundwater flow conditions based on simplifying aquifer assumptions.</u>	<u>0.25 month</u>

<sup>1</sup> The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reaches the monitoring point.

(e) A project sponsor shall obtain Department approval for the protocol(s) to be used to establish the retention times in subsections (c) and (d).

(f) Upon request from the Department, a project sponsor shall demonstrate that the underground retention times required in this section are being met based on changes in hydrogeological or climatic conditions since the most recent demonstration.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(56) Adopt Section 60320.226 as follows:**

**§60320.226. Monitoring Well Requirements.**

(a) Prior to operating a GRRP, a project sponsor shall site and construct at least two monitoring wells downgradient of the GRRP such that:

(1) at least one monitoring well is located;

(A) no less than two weeks but no more than six months of travel time from the GRRP, and

(B) at least 30 days upgradient of the nearest drinking water well;

(2) in addition to the well(s) in paragraph (1) and after consultation with the Department, at least one monitoring well is located between the GRRP and the nearest downgradient drinking water well; and

(3) samples from the monitoring wells in paragraphs (1) and (2) can be;



(A) obtained independently from each aquifer initially receiving the water used as a source of drinking water supply that will receive the GRRP's recharge water, and (B) validated as receiving recharge water from the GRRP.

(b) In addition to the monitoring required pursuant to section 60320.220, from each monitoring well in subsection (a)(1), and each monitoring well in subsection (a)(2) that has recharge water located within one year travel time of the well(s), a project sponsor shall collect two samples prior to GRRP operation and at least one sample each quarter after operation begins. Each sample shall be analyzed for total nitrogen, nitrate, nitrite, the contaminants in Tables 64449-A and B of section 64449, and any contaminants and chemicals specified by the Department or Regional Board based on the results of the recycled municipal wastewater monitoring conducted pursuant to this Article.

(c) If a result from the monitoring conducted pursuant to subsection (b) exceeds 80 percent of a nitrate, nitrite, or nitrate plus nitrite MCL a project sponsor shall, within 48 hours of being notified of the result by the laboratory, collect another sample and have it analyzed for the contaminant. If the average of the result of the initial sample and the confirmation sample exceed the contaminant's MCL, a project sponsor shall:

(1) within 24 hours of being notified by the laboratory of the confirmation sample result, notify the Department and Regional Board; and

(2) discontinue subsurface application of recycled municipal wastewater until corrective actions have been taken or evidence is provided to the Department and Regional Board that the contamination was not a result of the GRRP.

(d) For Department-specified chemical analyses completed in a month, a project sponsor shall ensure the laboratory electronically submits results to the Department no later than 45 days after the end of the month in which monitoring occurred, in a manner such that data is readily uploaded into the Department's database. Utilization of the process described on the Department's Web site will satisfy this requirement.

(e) The GRRP's project sponsor may discontinue monitoring for the chemicals and contaminants in subsection (b) following Department approval based on the Department's review of the most recent two years of monitoring results.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(57) Adopt Section 60320.228 as follows:**

**§60320.228. Reporting.**

(a) No later than six months after the end of each calendar year, a project sponsor shall provide a report to the Department and Regional Board. Public water systems and drinking water well owners having downgradient sources potentially affected by the GRRP and within 10 years groundwater travel time from the GRRP 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. The report shall include the following:

- (1) A summary of the GRRP's 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 subsurface application of recycled municipal wastewater 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 wells and diluent water supplies;
- (4) Information pertaining to the vertical and horizontal migration of the recharge water plume;

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

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

(7) The estimated quantity and quality of the recycled municipal wastewater and diluent water to be applied for the next calendar year;

(8) A summary of the measures taken to comply with section 60320.206 and 60320.200(j), and the effectiveness of the implementation of the measures; and

(9) Increases in RWC during the previous calendar year and RWC increases anticipated for the next calendar year.

(b) Every five years from the date of the initial approval of the engineering report required pursuant to section 60323, a project sponsor shall update the report to address any project changes and submit the report to the Department and Regional Board. The update shall include, but not be limited to:

(1) anticipated RWC increases, a description of how the RWC requirements in section 60320.216 will be met, and the expected impact the increase will have on the GRRP's ability to meet the requirements of this Article;

(2) evidence that the requirements associated with retention time in section 60320.208, if applicable, and section 60320.224 have been met; and

(3) a description of any inconsistencies between previous groundwater model predictions and the observed and/or measured values, as well as a description of how subsequent predictions will be accurately determined.

NOTE: Authority cited: Sections 13521, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

**(58) Adopt Section 60320.230 as follows:**

**§60320.230. Alternatives.**

(a) A project sponsor may use an alternative to a requirement in this Article if the GRRP's project sponsor:

(1) demonstrates to the Department that the proposed alternative assures at least the same level of protection to public health;

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

(3) if required by the Department or Regional Board, conducts a public hearing on the proposed alternative, disseminates information to the public, and receives public comments, pursuant to sections 60320.202(b) and (c).

(b) Unless specified otherwise by the Department, the demonstration in subsection (a)(1) shall include the results of a review of the proposed alternative by an independent scientific advisory panel that includes a toxicologist, a registered engineering geologist or hydrogeologist, 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, 13540, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.

## ARTICLE 7. Engineering Report and Operational Requirements

### (59) Amend Section 60323 as follows:

#### §60323. Engineering Report.

(a) No person shall produce or supply ~~reclaimed~~ recycled water for ~~direct~~ reuse from a ~~proposed~~ water reclamation plant ~~unless he files an~~ without a Department-  
approved engineering report.

(b) The report shall be prepared by a ~~properly~~ qualified engineer ~~registered~~ licensed in California and experienced in the field of wastewater treatment, and shall contain a description of the design of the proposed reclamation system. The report shall clearly indicate the means for compliance with these regulations and any other features specified by the regulatory agency.

(c) The report shall contain a contingency plan which will assure that no untreated or inadequately-treated wastewater will be delivered to the use area.

NOTE: Authority cited: Sections 13521, 13562 and 13562.5, Water Code; and Sections 131052 and 131200, Health and Safety Code. Reference: Sections 13520, 13522, 13522.5, 13523, 13523.1, 13524, 13540, 13560, 13561 and 13562.5, Water Code.