

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

RESPONSE TO WRITTEN COMMENTS

on the Tentative Order for
Water Reclamation Requirements for the
City and County of San Francisco's Non-Potable Water Program

We received brief written comments on Table 1 of the tentative order circulated for public comment from the State Water Resources Control Board's Division of Drinking Water (Division of Drinking Water) on June 16, 2017.

Water Code section 15323 also requires that the Regional Water Board consult with the Division of Drinking Water on recycled water programs. We communicated with the Division of Drinking Water to gain clarification and understanding of its comments and to discuss revisions to the circulated tentative order.

As a part of that consultation, we discussed edits to the following documents:

- a. The City and County of San Francisco's Non-Potable Water Program engineering report, which was submitted with its Report of Waste Discharge; and
- b. The San Francisco Department of Public Health's Rules and Regulations regarding the Operation of Alternate Water Source Systems (Attachment C). An Alternate Water Source System is also referred to as an "onsite non-potable water system" and consists of a system of facilities necessary for providing non-potable water, including but not limited to all collection, treatment, storage, and distribution facilities.

Changes to the tentative order and attachments resulting from the consultation are described below under staff-initiated revisions.

This response to comments document is structured in the following manner:

- Reference – states the specific section of the tentative order or its Monitoring and Reporting Program to which the comment pertains as well as contextual information, as needed;
- Comment – restates the comment; and
- Response – provides our response to the comment, the justification for changes to the tentative order, and the revisions to the tentative order, which are indicated with underline for additions and ~~striketrough~~ for deletions.

This document also contains staff-initiated revisions.

State Water Board

The Division of Drinking Water emailed comments on June 16, 2017.

Reference: Tentative Order Attachment A Monitoring and Reporting Program, Section C *Non-Potable Water Program – Producer Monitoring And Reporting Requirements*, Table 1: Water Quality Monitoring Requirements for Blackwater Treatment Systems. This table is

also located in the Tentative Order Section C *Non-potable Water Quality Requirements and Limitations*, Table 2: Water Quality Limitations for Blackwater Treatment Systems.

The comments consisted solely of requested edits to a portion of Table 1:

Parameter	Units¹	Water Quality Limits	Monitoring Frequency
Turbidity	NTU	a. The average shall not exceed 2 NTU within a 24-hour period; and a. The maximum shall not exceed <u>0.25</u> NTU more than 5 percent of the time within a 24-hour period; and b. No sample shall exceed <u>0.510</u> NTU at any time.	Continuously
<u>UV dose</u>	<u>mJ/cm²</u>	<u>The minimum validated UV dose shall be 80</u>	<u>Continuously</u>
<u>UV transmittance</u>	<u>percentag e</u>	<u>The minimum UVT shall be 65%</u>	<u>Continuously</u>

Response: We incorporated the recommended revisions into the Revised Tentative Order. The following discussion provides the background information and our rationale for making the recommended revisions.

Turbidity: Blackwater is defined as wastewater containing bodily or other biological wastes, as from toilets, dishwashers, kitchen sinks, and utility sinks. The turbidity water quality limits in the Revised Tentative Order applicable to blackwater are derived from the definition of filtered wastewater in California Code of Regulations title 22, division 4, chapter 3, section 60301.320 (referred to as Title 22). Title 22 contains requirements for recycled water quality and wastewater treatment requirements for the various types of allowed uses. For non-potable reuse applications, there are four types of recycled water based on levels of treatment.

The City and County of San Francisco’s Non-Potable Water Program (Program) requires that wastewater containing blackwater must be treated to disinfected tertiary. Disinfected tertiary recycled water goes through higher levels of wastewater treatment than for NPDES discharges that are sufficient for applications with more public exposure.

Title 22 includes turbidity requirements based on the type of filtration utilized. The tentative order included turbidity requirements for media filtration, and the Division of Drinking Water recommended also including turbidity requirements for membrane filtration. Since the types of wastewater treatment systems will vary, the tentative order was revised to include both sets of turbidity requirements.

Title 22 defines filtered wastewater as:

"Filtered wastewater" means an oxidized wastewater that meets the criteria in subsection (a) or (b):

- (a) Has been coagulated and passed through natural undisturbed soils or a bed of filter media pursuant to the following:
 - (1) At a rate that does not exceed 5 gallons per minute per square foot of surface area in mono, dual or mixed media gravity, upflow or pressure filtration systems, or does not exceed 2 gallons per minute per square foot of surface area in traveling bridge automatic backwash filters; and
 - (2) So that the turbidity of the filtered wastewater does not exceed any of the following:
 - (A) An average of 2 NTU within a 24-hour period;
 - (B) 5 NTU more than 5 percent of the time within a 24-hour period; and
 - (C) 10 NTU at any time.
- (b) Has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following:
 - (1) 0.2 NTU more than 5 percent of the time within a 24-hour period; and
 - (2) 0.5 NTU at any time.

Ultraviolet Light: Ultraviolet (UV) light is one method of wastewater disinfection that inactivates pathogens by disrupting their DNA strands, making them non-viable and non-infectious. Title 22 does not currently have requirements for disinfection via ultraviolet light. The National Water Research Institute has published the Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse. The guidelines are designed to provide regulatory agencies and water and wastewater utilities with a common basis for evaluating and implementing UV disinfection of waterborne pathogens such as viruses, bacteria, and parasites. Since UV may be used in the wastewater treatment systems covered under the Program, we incorporated the revisions.

We revised Table 2 in the tentative order as follows and revised Table 1 in Attachment A similarly:

Table 2: Water Quality Limitations for Blackwater Treatment Systems		
Parameter	Water Quality Limitations for Discharges to Land	Monitoring Frequency
Turbidity	<p><u>For media filter:</u></p> <ul style="list-style-type: none"> a. The average shall not exceed 2 NTU within a 24-hour period; b. The maximum shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period; and c. No sample shall exceed 10 NTU at any time. <p><u>For membrane filter:</u></p> <ul style="list-style-type: none"> a. <u>The maximum shall not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period; and</u> b. <u>No sample shall exceed 0.5 NTU at any time.</u> 	<u>Continuously</u>

<u>Ultraviolet light (UV) dose, if applicable</u>	<u>Minimum of 80 mJ / cm²</u>	<u>Continuously</u>
<u>UV transmittance, if applicable</u>	<u>Minimum of 65%</u>	<u>Continuously</u>

Staff-Initiated Changes

In addition to minor editorial and formatting changes, we made the following minor revisions. All revisions to the tentative order are shown below with underline for additions and ~~strike through~~ for deletions.

During the public comment period, the San Francisco Department of Public Health amended its Rules and Regulations, which are referenced within and included as Attachment C of the tentative order. Revisions, such as definitions and table numbers, were made to the tentative order to align with the Rules and Regulation revised and finalized on August 18, 2017.

1. Tentative Order Finding 7:

We revised the definitions of the alternative water sources that are covered under the Program as follows:

7. The Non-Potable Water Program requires various levels of treatment, monitoring requirements, and water quality limitations for the following Alternate Water Sources to be used in an onsite non-potable water system:

- a. Rainwater, which is precipitation that falls upon and is collected from roof surfaces or other man-made aboveground surfaces;
- b. Stormwater, which is precipitation that falls upon and is collected from at or below grade surfaces;
- c. Graywater, which is wastewater from bathroom sinks, lavatories, bathtubs, showers, clothes washing machines and laundry tubs but does not include kitchen sinks or dishwashers;
- d. ...

2. Tentative Order Finding 28, Prohibition A.10, and Non-Potable Water Quality Requirements And Limitations C.4 and C.5:

We revised the references to the California Department of Public Health and the State Water Board’s Division of Drinking Water based on our consultation with Division of Drinking Water staff.

28. State ~~Water Board of California Department of Public Health~~. This Order's requirements are consistent with the State Water Board’s (previously California Department of Public Health until the Drinking Water Program’s transfer to State Water Board on July 1, 2016-s) water reuse criteria as set forth in CCR Title 22, Division 4, sections 60301 through 60355 and the California’s Plumbing Code and are protective of public health, safety, or welfare, and waters of the State. The responsibility to provide

recommendations addressing protection of public health, safety, and welfare and to be included in water reclamation requirements for water that is used or proposed to be used as recycled water, currently resides with the State Water Board Division of Drinking Water.

According to Water Code section 13554.2(c), the [California Department of Public Health State Water Board](#) may delegate all or part of the duties it performs regarding the uses of recycled water within a county to a “local health agency authorized by the board of supervisors to assume these duties, if, in the judgment of that department, the local health agency can perform these duties.”

A.10. There shall be no cross-connection between potable water supply and piping containing the Alternate Water Sources. All users of Alternate Water Sources shall provide for appropriate backflow protection for potable water supplies as specified in Title 17, section 7604 of the CCR or as specified by the [California Department of Public Health State Water Board](#), the San Francisco Department of Public Health, or the San Francisco Public Utilities Commission.

C.4. ... As advancements in wastewater treatment technology, water quality standards, and treatment system performance monitoring occur, elements of the Non-Potable Water Program may require modification. A request for approval of the proposed changes shall be submitted to the ~~Regional Water Board~~ Executive Officer and the [State Water Board Division of Drinking Water](#) for review and approval. The Executive Officer may approve such modifications if they are consistent with this Order, ~~and~~ the Title 22 Water Recycling Criteria, and the [State Water Board Division of Drinking Water’s recommendations for protection of public health](#) and will not cause degradation.

C.5. Alternate Water source discharges may be used for all applications approved by the San Francisco Department of Health and consistent with allowed uses for recycled water based on treatment level in accordance with the Title 22 Water Recycling Criteria and the [State Water Board Division of Drinking Water’s recommendations for protection of public health](#).

3. Tentative Order Findings 34, 35, 44, Non-Potable Water Quality Requirements And Limitations C.4, and Attachment A-Monitoring and Reporting Program C.2:

We revised the references to table numbers in the San Francisco Rules and Regulations:

34. This Order and the Non-Potable Water Program address potential impacts to water quality through water quality monitoring and limitations for rainwater, stormwater, foundation drainage water, graywater, and blackwater treatment systems stated in Tables 2 through ~~688~~ of the San Francisco Department of Public Health Director’s Rules and Regulations (Attachment C).

35. This Order requires discharges to meet the water quality limits and frequencies at stated in Tables 2 through ~~688~~ of the San Francisco Department of Public Health’s Rules and Regulations (Attachment C) or Title 22 Water Recycling Criteria for blackwater,

whichever is more stringent. The Discharger shall ensure discontinuation of any discharges when water quality limits are not met.

44. ... All Alternate Water Sources will be treated to an appropriate level before being discharged to land. Blackwater will be treated in accordance with the requirements in the San Francisco Department of Public Health's Rules and Regulations (Attachment C, Table 277) and the Title 22 Water Recycling Criteria requirements. This Order includes water quality monitoring requirements (Attachment A) and effluent limitations for discharges of treated blackwater to land (Table 2). The Non-Potable Water Program contains water quality monitoring requirements for all Alternate Water Sources in accordance with the San Francisco Department of Public Health's Rules and Regulations (Attachment C, Tables 2 through 678).

C.4 Alternate Water Source discharges shall meet water quality limits and monitoring frequencies designated by the San Francisco Department of Public Health, [as stated in Tables 2 through 6 of the San Francisco Department of Public Health's Rules and Regulations \(Attachment C\)](#), this Order (Table 2), and Title 22 Water Recycling Criteria, as applicable, prior to discharge to land.

Attachment A. Section C.2. The Alternate Water Sources discharged pursuant to the Non-Potable Water Program shall meet the water quality limits and monitoring and reporting frequencies as stated in Tables 2 through 67 of the San Francisco Department of Public Health's Rules and Regulations (Attachment C) and **Table 1** of this Monitoring Program.

4. **Tentative Order Finding 42:**

We removed the attachment for the California Environmental Quality Act (CEQA) determinations for the ordinances passed by the City and County of San Francisco in support of the Non-Potable Water Program. We decided this was information that was not necessary to attach.

42. ... Therefore, adoption and implementation of the Non-Potable Water Program Ordinance and subsequent amendments to the Ordinance are exempt from environmental review under Class 8 as determined by the San Francisco Public Utilities Commission Bureau of Environmental Management. ~~Attachment G contains copies of the CEQA determinations for the Non-potable Water Program Ordinances.~~ Attachment F contains the City and County Health Code Article 12C – Alternate Water Source for Non-potable Applications, which includes the amended ordinances.

5. **Tentative Order Findings 44 and 45:**

At the time of the drafting of the tentative order, the San Francisco Public Utilities Commission (SFPUC) was not blending groundwater with Hetch Hetchy reservoir water. SFPUC now pumps, treats, and blends some groundwater with its regional drinking water supplies. Finding 44 also included application requirements that reference the project engineering report. A revised engineering report was submitted to SFPUC in response to the State Water Board's comments.

44. ... ~~Although groundwater is not currently a drinking water source for San Francisco residents,~~ the Westside groundwater basin will be used to supply a portion of the potable water supply for San Francisco residents.

45. To obtain coverage under this Order, the City and County submitted a Report of Waste Discharge, draft Engineering Report, and supporting information to the Regional Water Board on December 4, 2015, ~~and a revised final~~ Engineering Report on February 22, 2016, and a final Engineering Report on August 22, 2017. The Report of Waste Discharge included the following supporting documentation: ...

6. **Tentative Order Finding 46 and General Provisions E.5:**

We added a Finding and a Provision to reflect an annual fee:

46. Annual fee. The Discharger is responsible for payment of an annual fee, pursuant to Water Code section 13260 and the Annual Fee Schedule as stated in CCR Title 23, division 3, chapter 9, section 2200 (Annual Fee Schedules). The fee amount is determined by the type of order and the Threat to Water Quality and Complexity ratings assigned to that discharge. The Water Quality Fee Schedule accessible online at http://www.waterboards.ca.gov/resources/fees/water_quality/#wdr.

E.5. The Discharger shall pay an annual fee in accordance with the fee schedule given in CCR Title 23, section 2200 and annual fee invoices issued by the State Water Board.

7. **Tentative Order Non-Potable Water Program Provisions D.13:**

We added a reference to the Title 22 dual plumbing requirements based on the State Water Board's recommendation.

D.13. The Discharger shall implement a cross-connection program that forbids cross-connections between potable water and Alternate Water Source Systems and ensures that backflow prevention devices are in proper working order by conducting or requiring User testing, in accordance with the Non-Potable Water Program criteria and CCR Title 17, section 7605. Dual plumbed Alternate Water Source Systems shall comply with CCR Title 22, sections 60313 – 60316. ...