

FINAL STATEMENT OF REASONS
Onsite Treatment and Reuse of Nonpotable Water Regulations
Title 22, California Code of Regulations
February 2026

UPDATE OF INFORMATION CONTAINED IN THE INITIAL STATEMENT OF REASONS

(Gov. Code, §11346.9, subd. (a)(1))

As a result of the public comments received during the initial comment period (“45-day comment period¹”), the State Water Resources Control Board (State Board) revised the regulatory text provided for public comment for the 45-day comment period, resulting in an additional comment period (“15-day comment period¹”). A list of the revised regulation text by sections is provided in the “Revisions Following the 45-Day Comment Period” provided in page [74](#).

On August 1, 2025, the State Board published a Notice of Public Availability of Changes to the Proposed Regulation Text (Notice) and provided the revised regulation text, along with a page indicating the methods used for illustrating the changes to the original text. The State Board also indicated in the Notice that two documents were added to the rulemaking file and provided the locations of where the documents can be accessed ([NSF/ANSI 55-2024](#), which is a document incorporated by reference, and [Alja’fari, et al. 2023](#), which is a document relied upon). The “15-day comment period” closed on August 19, 2025, at noon.

ACRONYMS AND TERMS

The following is a list of acronyms or abbreviated phrases, used in this document, and their meanings:

AB	Assembly Bill
ANSI	American National Standards Institute
BMP	Best Management Practice
CCR	California Code of Regulations
CPC	California Plumbing Code
CEQA	California Environmental Quality Act
DDW	Division of Drinking Water
EIA	Economic Impact Assessment
GC	General Comment

¹ Although the comment periods exceeded the statutorily mandated minimum timeframes of 45 days and 15 days, those periods are commonly referred to as “the 45-day comment period” and “the 15-day comment period”.

IAPMO	International Association of Plumbing and Mechanical Officials
ISOR	Initial Statement of Reasons
LRT	Log reduction target
LRV	Log reduction value
MBR	Membrane bioreactor
MS4	Municipal Separate Storm Sewer System
MST	Microbial Source Tracking
NSF	NSF International
NOPR	Notice of Proposed Rulemaking
NWRI	National Water Research Institute
O&M	Operations and Maintenance
OTNWS	Onsite treated nonpotable water system
PFAS	Per- and Polyfluoroalkyl Substances
PLC	Programmable Logic Controller
QMRA	Quantitative Microbial Risk Assessment
Regional Board or RWQCB	Regional Water Quality Control Board
RO	Reverse Osmosis
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
State Board or SWRCB	State Water Resources Control Board (also referred to as “State Water Board” by some commenters)
U.S. EPA	United States Environmental Protection Agency
UV	Ultraviolet
UVT	Ultraviolet transmittance
Water Recycling Criteria	CCR Title 22, division 4, chapter 3
WDR	Waste Discharge Requirements

**SUMMARY OF AND RESPONSE TO ORAL AND WRITTEN PUBLIC COMMENTS
 RECEIVED DURING THE 45-DAY COMMENT PERIOD**

(Gov. Code, §11346.9, subd. (a)(3))

This regulatory action (SBDDW-22-001) was made available to the public on March 21, 2025, and public comments were accepted until 12:00 p.m. (noon) on May 9, 2025. The State Board held a public hearing in Sacramento on May 8, 2025. The table below presents a record of those having provided written and oral comments on the proposed regulations during the 45-day comment period.

Unless otherwise noted, the number associated with a specific commenter(s) in the comment summaries and responses sections that follow correspond to the numbers assigned to the commenter(s) in the tables below.

Table 1: Commenters Providing Written Comments during 45-day Comment Period

No.	Name	Affiliation
1	Ben Arnold	Aquacell, Inc.
2	Marvin Sachse	Brash Industries
3	Robert Raymer	California Building Industry Association California Apartment Association California Business Properties Association Building Owners and Managers Association
4	Tim Carmichael	California Council for Environmental and Economic Balance
5	Tyler Mayo	California Department of Housing and Community Development
6	Nancy King	California Department of Water Resources
7	Taylor Nokhoudian	City and County of San Francisco
8	Elizabeth Flegel	City of Mountain View
9	Pravani Vandeyar	City of Sacramento Department of Utilities
10	Greg Thomas	Elsinore Valley Municipal Water District
11	Richard Ross	Epic Cleantec
12	Cathy Dacanay	General Public – Practitioner/Operator
13	Jim Geselbracht	General Public – Practitioner/Consulting engineer
14	Alexia Skrbic	Heal the Bay

No.	Name	Affiliation
15	Vincent Gruffat	Natural Systems Utilities
16	Derek Deland	NSF
17	Stuart Bailin	Wahaso
18	Rosario Cortés Jared Voskuhl Stephen Pang	WateReuse California California Association of Sanitation Agencies Association of California Water Agencies
19	Diane Fung ^(a)	New York City Department of Health and Mental Hygiene
20	Lorien Fono ^(a)	Bay Area Clean Water Agencies

(a) Comment letter submitted past the comment letter deadline.

Table 2: Commenters Providing Oral Comments at the May 8, 2025, Public Hearing

No.	Name	Affiliation
10	Greg Thomas ^(a)	Elsinore Valley Municipal Water District
18	Rosario Cortés ^(b)	WateReuse California

(a) Greg Thomas serves as a representative of Elsinore Valley Municipal Water District, which also provided written comments to the State Board.

(b) Rosario Cortes serves as a representative of WateReuse California, which also provided written comments to the State Board.

The oral comments provided during the public hearing in Sacramento on May 8, 2025, were substantially similar to those provided by the same organizations in writing during the 45-day comment period.

The State Board has summarized and addressed all oral and written comments received together in the following sections, organized under two headings: “General Comments and Responses” and “Specific Comments and Responses”. Transcripts from the public hearing are included in the rulemaking file.

General Comments and Responses

This section addresses received comments that were not directed at a specific section of the proposed regulations. Comments directed at a specific section of the proposed regulations are addressed in the subsequent sections, organized by the section number of the proposed regulations.

GC-1:

Commenter 2 suggested that existing small stormwater treatment facilities that are regulated by the Los Angeles Regional Water Quality Control Board's (RWQCB) Commercial Institutional Industrial (CII) permit should be exempt from the proposed regulations and should be grandfathered in until these systems are due for upgrades. Absent this allowance, the commenter noted the following concerns: "(1) Regulation under two permits; (2) Make treatment systems unaffordable for small facilities; (3) Make operation and maintenance (O&M) costs more expensive; (4) Cause unnecessary utilization of land for treatment equipment; (5) The use of chlorination as a treatment methodology is prohibited."

Response:

The commenter is referring to Los Angeles RWQCB National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Commercial, Industrial, and Institutional (CII) facilities in the Dominguez Channel/Inner Los Angeles and Long Beach Harbor Watershed and the Los Cerritos Channel/Alamitos Bay Watershed (Los Angeles RWQCB CII Permit). The CII stormwater permit applicability is for commercial, industrial, or institutional sites that have more than 5 acres in impervious surfaces and is located within Dominguez Channel/Greater Los Angeles and Long Beach Harbor Watershed and the Los Cerritos Channel/Alamitos Bay Watershed in Los Angeles County. The commenter appears to suggest that all sites subject to the Los Angeles RWQCB CII Permit would automatically be required to comply with the proposed regulations.

While State Board staff acknowledge that there are various state and federal regulations/regulatory programs addressing stormwater capture and use, the applicability of each regulatory program is subject to case-by-case evaluation. Without specific information on each site that is subject to the Los Angeles RWQCB CII Permit, it is not feasible for State Board staff to determine whether each site is subject to the proposed regulations. The applicability criteria for a stormwater reuse facility to be considered an OTNWS – such as onsite/off-site collection, treatment, and use of source water, connection to public water supply and community water system, building type served (commercial, multifamily residential, mixed-use), and whether the OTNWS exclusively disposes waste to community sewer system – are factors to be considered. These characteristics are anticipated to vary among CII facilities subject to the Los Angeles RWQCB CII permit that are either choosing or already operating stormwater capture and use system.

Consultation with Los Angeles RWQCB's CII stormwater permit program staff confirmed that the Los Angeles RWQCB CII stormwater permit provides several pathways for compliance, including capture and use, infiltration, diversion to the sanitary sewer, and/or evapotranspiration. Many common structural best management practices (BMPs) used for stormwater regulatory program compliance in urban areas, such as

bioswales, infiltration basins, rain gardens, and permeable pavements, are not subject to the proposed regulations because they are either exempted from subdivision (d) of section 13558 of the Water Code² or are systems designed solely to infiltrate stormwater (e.g. permeable pavement, bioswales, infiltration basins), which are not addressed by the proposed regulations.

No revisions were made to the proposed regulations as a result of these comments.

GC-2:

Commenter 2 stated that the use of onsite treated nonpotable water for irrigation and car washing presents a significant risk to groundwater, and discharging graywater to the land would introduce soaps, saponifiers, shampoos, chemical pollutants, and hair care products for head lice that are not removed with treatment systems targeting biological organisms.

Response:

State Board staff acknowledge that untreated graywater may contain residual soaps, shampoos, and other household products; however, the proposed regulations address treated graywater for the allowable end uses only. Consistent with the authorizing statutes, the proposed regulations are intended to address human health risks due to exposure from pathogens. Responsible entities must comply with the proposed regulations and the local jurisdiction program requirements, and when appropriate, applicable requirements related to environmental discharges imposed by the RWQCBs and any other regulatory entities. Although not intended to specifically address human health risk from chemicals, treatment processes used to achieve the required pathogen log reduction such as biological treatment and filtration may help reduce concentrations of chemicals prior to end use. The proposed regulations also require that onsite treated nonpotable water must be used in a manner that will not result in excessive ponding, pooling, or runoff, which will minimize impact to groundwater.

No revisions were made to the proposed regulations as a result of this comment.

GC-3:

Commenter 2 provided the following comments and stated that the requirements for OTNWS installations are not clear:

- The commenter noted that the “Fiscal Impact” section states, “there are 15 existing installed alternate water systems owned by local government in Los

² *Subdivision (d) of section 13558 of the Water Code excludes rainwater systems used exclusively for irrigation from being subjected to the proposed regulations. The proposed regulations defer to the California Building Standards Code for the definition of “rainwater,” which is “precipitation on any public or private parcel that has not entered an offsite storm drain system or a channel, a flood control channel, or any other stream channel, and has not previously been put to beneficial use.” Within the context of the proposed regulations, onsite-collected stormwater would be considered “rainwater” for the purpose of determination of exemption.*

Angeles County that will be impacted.” The commenter is seeking clarification as to whether an OTNWS would be required at each multifamily residential, commercial, and mixed-use building.

- The commenter also noted that the “Housing Costs” section states, “Costs related to compliance with the proposed regulations will be incurred directly by private entities owning the multifamily residential or mixed-use occupancy buildings...,” and that the State Board wrote, “At the time of this assessment data to analyze potential pass-through to individuals is not available.” The commenter then noted that the “Significant Statewide Adverse Economic Impact Directly Affecting Businesses in California, Including Ability to Compete” section states: “The proposed regulations will not have a significant, statewide adverse economic impact directly affecting business...” The commenter questions this statement although the State Board has previously stated that there is no cost assessment.

Response:

The commenter is referring to various sections in the Notice of Proposed Rulemaking (NOPR) for the proposed regulations, which includes the State Board’s determinations to satisfy the requirement for posting a NOPR, but does not provide a full discussion of the economic impact of the proposed regulations. The commenter is encouraged to review the Economic Impact Assessment (EIA) in the Initial Statement of Reasons (ISOR), which was also made available during the 45-day comment period. The EIA is prepared pursuant to subdivision (b)(1)(A)-(D) of section 11346 of the Government Code. The full EIA is provided as Appendix C of the ISOR.

- *The “Fiscal Impact” section in the NOPR pertains to the “Fiscal impact on local or state government (Gov. Code, §11346.5, subd. (a)(6))” portion in the EIA, which discussed estimated fiscal impact to local governments that own or operate existing alternate water systems that may need to be upgraded once the proposed regulations become effective. The proposed regulations are not mandatory regulations and do not mandate installation of an OTNWS at each multifamily residential, commercial, and mixed-use buildings statewide. The proposed regulations, however, are applicable to multifamily residential, commercial, and mixed-use buildings that are subject to a local jurisdiction’s permitting program. Subdivision (f) of section 13558 of the Water Code requires that any existing OTNWS in operation before the effective date of the regulations shall comply with the regulations within two years of the effective date or within five years of the effective date if there are extenuating circumstances.*
- *The “Housing Cost” section in the NOPR is based on the discussion in the EIA’s (ISOR Appendix C) section 5.1 titled “Direct Cost for Typical Business, Small Businesses, and Individuals.” Specifically, as it relates to housing costs, single-family residences are not subject to the requirements of the proposed regulations; therefore, individuals are not expected to incur any direct costs to comply with the proposed regulations. The proposed regulations are only applicable to multifamily residential, commercial, and mixed-use occupancies*

that are subject to local jurisdiction program permitting. Costs related to compliance with the proposed regulations will be incurred directly by businesses or private entities owning the multifamily residential or mixed-use occupancy buildings. The costs related to compliance with the proposed regulations may be passed on to individuals in the form of increased cost of goods or services provided by the business, or in the form of increased facilities fees or condominium fees. At the time of the State Board staff's assessment, data to analyze potential pass-through to individuals was not available.

- *The “Significant Statewide Adverse Economic Impact Directly Affecting Businesses in California, Including Ability to Compete” determination is based on the EIA (ISOR Appendix C) discussion in section 7 titled “Economy-Wide Impacts.” Economy-wide impacts of the proposed regulations, particularly the impact on jobs within the state, were estimated using the regional economic model developed by the U.S. Bureau of Economic Analysis, the Regional Input-Output Modeling System (RIMS II) contained in the Appendix of the EIA.*

No revisions were made to the proposed regulations as a result of this comment.

GC-4:

Commenter 4 stated that subdivision (a) of section 13558 of the Water Code requires the State Board to address in regulations the establishment of risk-based pathogen log reduction targets for the removal of pathogens. The commenter stated that the proposed regulations assume all stormwater contains ten percent human sewage, which is applying a worst-case scenario rather than a risk-based approach. The commenter stated this approach could significantly limit capture and use of stormwater with lower levels pathogens (lower contribution of human sewage).

Response:

The pathogen log reduction targets for the removal of pathogens in the proposed regulations are risk-based because they are derived using a quantitative microbial risk assessment (QMRA), which is a scientific method for evaluating health risks from microbial exposure. A key limitation in the determination of statewide risk-based pathogen log reduction targets is the relative dearth of data describing the distribution of pathogens in untreated alternate water sources, which was documented in the 2017 and 2021 studies regarding the determination of pathogen log reduction targets for alternate water sources (Sharvelle et al. (2017), Olivieri et al. (2021)).

The State Board's expert panel³ provided two sets of stormwater LRTs to reflect lower (0.1%) and higher (10%) dilution of untreated municipal wastewater, which impacted the

³ The State Board contracted with the National Water Research Institute (NWRI) to convene an Independent Advisory Panel on Regulations for On-Site Treatment and Reuse of Nonpotable Water (Panel) to assist State Board staff in determining the appropriate pathogen LRTs. The Panel's effort and recommendation for the pathogen LRTs for water sources and end uses is summarized in [“Risk-based treatment targets for onsite non-potable water systems using new pathogen data.”](#)

QMRA input of pathogen concentrations in stormwater. These values are intended to bookend the estimates of the range of wastewater contributing to a stormwater stream.

The State Board's proposed criteria are subject to scientific peer review pursuant to section 57004 of the Health and Safety Code. At the time of undertaking the scientific peer review process, there were no subsequent publications or studies that provided a more accurate estimate of pathogen concentration in stormwater or a methodical characterization of stormwater sources to determine whether lower or higher dilution-based LRTs should be used; therefore, stormwater LRTs reflecting 10% untreated municipal wastewater contribution were selected for the proposed regulations. Infrastructure conditions and stormwater sources for OTNWS are highly variable statewide, and higher wastewater contribution can be caused by sanitary sewer overflows or chronic leakages into stormwater networks.

This conclusion continues to be supported by a 2023 Water Research Foundation study [WRF 5034](#) titled "Assessing the Microbial Risks and Impacts from Stormwater Capture and Use to Establish Best Management Practices." The authors conclude that in the absence of site-specific human microbial source tracking (MST) marker monitoring⁴, a conservative assumption (10% sewage dilution) is appropriate.

A literature review investigating the impact of land use characteristics, infrastructure condition, stormwater event characteristics, climate and stormwater collection area size on stormwater microbial quality does not point to specific trends between storm event characteristics, land use, or climate and associated microbial quality. In absence of a definitive and practical path to distinguish between the lower and higher dilution (0.1% and 10%), State Board staff deferred to the more conservative assumption for public health protective criteria.

No revisions were made to the proposed regulations as a result of this comment.

GC-5:

Commenter 8 stated that clarity is needed on which regulations under title 22 of the California Code of Regulations (CCR) apply when recycled water delivered by a local jurisdiction is blended with onsite treated nonpotable water to serve a building.

Response:

The responsible entity is required to comply with all local and state requirements related to the use of municipal recycled water and onsite treated nonpotable water. For indoor uses, only disinfected tertiary recycled water can be delivered by a municipal recycled

⁴ WRF 5034 provides two options to inform selection of stormwater pathogen LRTs. Option 1 is to adopt LRTs identical to those proposed in the regulations. Option 2 requires a site-specific quarterly monitoring of human fecal contamination analog (HFCA) with a threshold of 10³ GC/100 mL of human MST marker HF183 to correlate with sewage dilution.

water provider. When requirements conflict, the more restrictive requirement must be complied with.

No revisions were made to the proposed regulations as a result of this comment.

GC-6:

Commenters 8 and 15 recommended that the proposed regulations be revised to include a size threshold to clarify when a site would be permitted by a RWQCB instead of a local jurisdiction program for onsite treated nonpotable water systems. Commenter 15 recommended that the State Board consider a flow threshold of 20,000 gallons per day for these systems as that approach would ensure consistent oversight of complex and higher-risk systems.

Response:

Subdivision (a) of section 13558.1 of the Water Code requires that an OTNWS be installed under a local jurisdiction program that meets the requirements of subdivision (b) of section 13558 of the Water Code. Subdivision (h) of section 13558 of the Water Code defines “local jurisdiction” as a city, county, or city and county. The statutes addressing onsite treated nonpotable water systems do not contemplate any scenario where a Regional Board can be considered a “local jurisdiction.” The State Board’s mandate is limited to adopting the proposed regulations.⁵ Extending the statutory definition of “local jurisdiction” to include Regional Boards is outside of the State Board’s authority. Permitting through a Regional Board order in lieu of a local jurisdiction permitting program would also be inconsistent with the statutory requirements for consultation with water service or sewer service providers for identification and demonstration of significant adverse impact⁶ resulting from OTNWS permitting.

Alternate water systems addressed by the proposed definition of OTNWS in subsection (ff) of section 60600 in the proposed regulations include systems treating nonpotable water sources that do not contain domestic wastewater (i.e., stormwater, graywater, and roof runoff) and systems treating domestic wastewater that discharge their wastes into the community sewer system. Wastewater treatment systems that discharge their waste into the community sewer system are not required to submit a report of waste discharge to the Regional Board⁷, and generally are not subject to Regional Board permitting. The scope of OTNWSs addressed by the proposed regulations will close the existing regulatory gap in permitting alternate water systems, provide local jurisdictions and/or water/sewer/water recycling agencies the independence to select solutions appropriate for their local water supply/water recycling needs, and ensure that OTNWSs are operated in a manner protective of public health.

No revisions were made to the proposed regulations as a result of this comment.

⁵ Subdivision (a) of section 13558 of the Water Code

⁶ Subdivision (b)(1)(B)(i) of section 13558 of the Water Code

⁷ Subdivision (a)(1) of section 13260 of the Water Code

GC-7:

Commenter 10 expressed strong support for the involvement of local utility agencies in the planning and implementation of OTNWSs. Municipal water agencies and wastewater providers must be consulted to ensure OTNWS installation and operation do not interfere with existing infrastructure or planned centralized projects. The commenter also stated that local jurisdictions should lead the effort to adopt ordinances establishing onsite reuse programs, as required by Senate Bill 966 (Wiener, 2018), to ensure that these systems are integrated responsibly into the broader water management framework.

Response:

State Board staff agree with the importance of involving local utility agencies in the planning and operation of OTNWSs to ensure that onsite nonpotable water reuse does not interfere with existing infrastructure or planned centralized projects. The proposed regulations have been revised to include requirements for responsible entities to either seek approval from or notify local utility agencies during commissioning (subsection (f) of section 60684) and decommissioning (subsection (a) of section 60696) of an OTNWS, and in the event of cross-connection discovery (subsection (a)(1) of section 60710).

GC-8:

Commenter 10 suggested that a public water systems' role should be considered in the cross-connection and pretreatment components of OTNWS permitting, noting the importance to both the protection of public health and to mitigate the potential increased concentrated waste loadings to the sewer systems and water reclamation facilities. Commenter 10 also suggested the involvement of public water systems during the planning, permitting, and operational stages of OTNWSs, to ensure public health and environmental protection.

Response:

The proposed regulations have been revised to include requirements for responsible entities to either seek approval from or notify local utility agencies during commissioning (subsection (f) of section 60684) and decommissioning (subsection (a) of section 60696) of an OTNWS, and in the event of cross-connection discovery (subsection (a)(1) of section 60710).

GC-9:

Commenter 10 emphasized the importance of carefully considering the impacts of onsite reuse systems on ongoing and planned centralized water recycling programs. Coordination with existing centralized recycled water programs and water conservation programs will help avoid potential conflicts and ensure the sustainability of both new and existing reuse initiatives.

Response:

State Board staff appreciate this statement. Water Code section 13558, subdivision (b) requires local jurisdictions that elect to establish a program for OTNWSs to consult and coordinate with water and sewer service providers to avoid and mitigate adverse impacts to planned centralized recycled water facilities. Although it is outside the scope of the State Board's proposed regulations, local jurisdiction may nonetheless consider the impact of an onsite reuse system on any planned centralized water recycling programs.

No revisions were made to the proposed regulations as a result of this comment.

GC-10:

Commenters 11 and 15 inquired about what permitting pathways are available for potential responsible entities when the local jurisdiction does not elect to establish an OTNWS program, and whether existing OTNWSs must be taken offline. Commenter 11 noted that if existing OTNWSs must be taken offline in the absence of a local jurisdiction permitting program, the proposed regulations would render an OTNWS owner's investment worthless and eliminate the ability to utilize their OTNWS. Commenter 15 requested clarification on whether system owners and operators would continue to engage with the Regional Board for permitting and reporting in these situations.

Response:

Water Code sections 13558 and 13558.1 require any OTNWS to be established pursuant to a local jurisdiction program as set forth in the proposed regulations. Section 13558 further allows up to five years for an existing OTNWS to come into compliance with the approved regulations, as long as a local jurisdiction approves the time extension. Existing OTNWSs currently regulated by a Regional Board and for which there is no local jurisdiction program should confirm their permitting requirements with the respective Regional Board.

No revisions were made to the proposed regulations as a result of this comment.

GC-11:

Commenter 11 has received feedback from various local jurisdictions' personnel expressing strong interest in implementing the proposed regulations; however, many also expressed concerns on staffing and funding constraints which pose difficulty for establishing local programs. The likelihood of the absence of local jurisdiction permitting program creates uncertainty for building owners that are considering OTNWS installation. The commenter also notes that the existing regulatory framework allows OTNWS owners to secure a permit through the Regional Board, and the commenter is concerned that this permitting path is eliminated once the proposed regulations are in place.

Response:

State Board staff appreciate the commenter's insight regarding concerns raised by local jurisdictions and building owners. Water Code section 13558.1, subdivision (a) is clear that a new OTNWS cannot be installed without complying with requirements of Water Code section 13558, including permitting and oversight by a local jurisdiction program. No revisions were made to the proposed regulations as a result of this comment.

GC-12:

Commenter 12 suggested the proposed regulations require OTNWSs to be equipped with separate variable frequency drives for booster pumps to ensure onsite treated nonpotable water can be delivered for indoor end uses, such as toilet flushing, in situations where the Programmable Logic Controller (PLC) or control panel is offline or the system is receiving maintenance.

Response:

State Board staff appreciate that the commenter highlighted the importance of system design to support uninterrupted delivery of onsite treated nonpotable water; however, this feature is a design consideration that the responsible entity and their system designer need to make. The proposed regulations require that potable water supply delivered by a public water system be available as a supplemental source of water if onsite treated nonpotable water is delivered for indoor uses as specified in subsection (a) of section 60670.

No revisions were made to the proposed regulations as a result of this comment.

GC-13:

Commenter 12 suggested that existing OTNWSs that were constructed at least ten years ago should be exempted from the requirement to retrofit or upgrade to comply with the proposed regulations.

Response:

Subdivision (f) of section 13558 of the Water Code requires that any OTNWS in operation before the effective date of the proposed regulations must comply with the regulations within two years of the effective date. If the local jurisdiction finds that the permittee is working to come into compliance with the regulations, but due to extenuating circumstances related to engineering, repair, or replacement of the system, the local jurisdiction may grant an extension to comply with the regulations not to exceed five years of the effective date. The State Board's proposed regulations cannot supersede the statutory requirements.

No revisions were made to the proposed regulations as a result of this comment.

GC-14:

Commenter 14 expressed support for the proposed regulations for OTNWSs. The commenter recommended that the proposed regulations be revised to address contaminants of emerging concern (CECs), such as per- and polyfluoroalkyl substances (PFAS). The commenter observed that the proposed regulations lack specific standards, monitoring protocols, and treatment requirements for CECs. The commenter recommended revising the engineering report requirements in section 60680 of the proposed regulations to include an evaluation of the source water for the presence of CECs and chemical contaminants. Based on the results of the source water evaluation, the commenter suggested that the engineering and monitoring reports contain site specific and risk-based plans for relevant chemical contaminants identified. The commenter also recommended that when CECs are found above health-protective levels in OTNWSs, the treatment trains should demonstrate validated capacity to reduce those contaminants.

Response:

The adoption of the proposed regulations is to satisfy the requirements of Water Code section 13558, subdivision (a) for State Board to adopt risk-based water quality standards that address risk-based log reduction targets for the removal of pathogens in alternate water sources for nonpotable end uses. Risks from chemical exposures, such as from CECs, are outside the scope of the proposed regulations. The alternate water sources considered for the proposed regulations do not include industrial wastewater, such as dairy, meat or poultry processing plants, or chemical manufacturing, which may pose a higher risk for chemical contaminants.

The proposed regulations include use area requirements to prohibit spray, mist, or runoff and application that would result in unnecessary and additional exposure to the public. The proposed regulations also include use area requirements that prohibit excessive ponding, pooling, or runoff to minimize impact to water quality.

Consistent with State Board's recycled water regulations for nonpotable end uses in California Code of Regulations, title 22, division 4, chapter 3, the proposed regulations do not address human health risks from exposure to chemicals. Human exposure through small amounts of water from incidental contact with and accidental consumption of onsite treated nonpotable water is negligible compared to exposure volumes from potable water.

No revisions were made to the proposed regulations as a result of this comment.

GC-15:

Commenter 14 stated that their organization, Heal the Bay, supports continued monitoring requirements to make sure that water quality safety standards are met for the onsite treatment and reuse of nonpotable water. The commenter noted it is important to monitor and hold systems to compliance standards. The commenter also

recommended revising the regulations to require quarterly reporting and provide clarification on how enforcement will work under the proposed regulations.

Response:

Water Code section 13558.1, subdivision (a) requires that an OTNWS be installed under a local jurisdiction program that meets the requirements of the statutes. The local jurisdiction has oversight authority over OTNWS installations and operations, including the authority for enforcement. The definition of local jurisdiction in subsection (u) of section 60600 of the proposed regulations has been revised to state that a local jurisdiction must have the authority to create, implement, and enforce the program requirements pursuant to subdivision (b) of section 13558 of the Water Code. The statutes require that a local jurisdiction that elects to establish a program for OTNWSs adopt a local program through a local ordinance that includes the requirements set by the proposed regulations.

The proposed regulations require responsible entities to submit at a minimum, quarterly monitoring to the local jurisdiction. The local jurisdiction has the discretion to require a more stringent monitoring frequency.

GC-16:

Commenter 15 requested clarification on how the proposed regulations will apply to OTNWSs operated on federally owned land. The commenter inquired whether such systems will be governed under State oversight and stated that clear guidance is necessary for system operators on federal property.

Response:

State Board staff appreciate the commenter's inquiry seeking clear guidance on the matter. Most federal facilities are subject to state and local laws and jurisdiction. For federal facilities that are not, the State Board regulations will not apply.

No revisions were made to the proposed regulations as a result of this comment.

GC-17:

Commenter 15 recommended that the proposed regulations be revised to include a specific deadline by which local jurisdictions must adopt a permitting program for OTNWSs. The commenter indicated that without a firm deadline or a mandatory requirement to establish such programs, there is a significant risk of regulatory gaps and delays in the enrollment, permitting, and operation of existing systems. The commenter stated that a clear requirement and timeframe would enhance timeliness, ensure consistency, and provide greater certainty for system owners and operators.

Response:

The State Board's mandate is limited to adopting the proposed regulations for adoption into local jurisdiction programs for OTNWSs; therefore, setting a deadline or mandatory requirement to establish local jurisdiction program is outside of State Board's authority.

No revisions were made to the proposed regulations as a result of this comment.

GC-18:

Commenter 15 stated that the proposed regulations allow for alternatives to prescribed treatment trains but do not clearly define the approval process. The commenter recommended that the proposed regulations be revised to provide more specific criteria for evaluating and approving alternative treatment trains.

Response:

The criteria for an alternative treatment train are provided in section 60634 of the proposed regulations. State Board staff anticipate that not all projects can or will elect to install pathogen control treatment trains; therefore, a path for alternatives to pathogen control treatment trains is provided to facilitate such proposals. The proposed regulations have also been revised to add streamlining criteria on alternative treatment train requirements in subsection (c) of section 60634. No other revisions were made to the proposed regulations as a result of this comment.

GC-19:

Commenter 15 recommended that recycled water treatment systems currently permitted under title 22 of the California Code of Regulations be formally recognized as equivalent to the prescribed treatment trains outlined in the proposed regulations. The commenter noted these systems have already demonstrated compliance with stringent performance standards and permitting requirements. The commenter stated that recognizing these systems' equivalency would reduce regulatory redundancy, ensure continuity of operations, and help avoid unnecessary retrofitting.

Response:

The commenter is referring to wastewater treatment plants that produce recycled water in accordance with California Code of Regulations, title 22, division 4, chapter 3 (Water Recycling Criteria).

The Water Recycling Criteria address the treatment of municipal wastewater and impose effluent standards and, when applicable, filtration, disinfection, and daily total coliform monitoring for the different types of recycled water quality (i.e. disinfected tertiary recycled water, disinfected secondary-2.2 recycled water, disinfected secondary-23 recycled water, undisinfected secondary recycled water).

While the Water Recycling Criteria and the proposed regulations share the same goal of protection of public health, water treatment criteria for the two sets of regulations are not directly comparable. The treatment standards for Water Recycling Criteria are

expressed through categories of recycled water quality, which are based on the acceptable levels of constituents (such as total coliform) and disinfection standards. These standards are not based on a specific numerical health risk goal and instead use measurable water quality indicators in the treated water to confirm treatment efficacy. These water quality indicators (e.g. the concentration of total coliform bacteria not exceeding 2.2 MPN per 100 mL of recycled water) do not translate into inactivation/removal of pathogens.

As such, determining equivalency of wastewater treatment plants or water recycling facilities with a pathogen control treatment train in the proposed regulations is not possible without fully validating or confirming the wastewater treatment or water recycling process train for pathogen log reduction in accordance with the requirements provided in section 60634 of the proposed regulations for alternatives to pathogen control treatment trains.

No revisions were made to the proposed regulations as a result of this comment.

GC-20:

Commenter 15 recommended that the proposed regulations be revised to include a methodology for determining the log reduction values (LRVs) of treatment units not included in the prescribed treatment trains. The commenter stated that establishing a transparent process for demonstrating performance equivalency will support the development of more sustainable, fit-for-purpose system designs.

Response:

The methodology for demonstrating the LRVs of treatment processes not included in the prescribed treatment trains is a part of the requirements for conducting a validation study of an alternative treatment train in section 60634 of the proposed regulations. The requirements for validation study protocol and report are provided in section 60682.

No revisions were made to the proposed regulations as a result of this comment.

GC-21:

Commenter 16 recommended that the State Board reconsider the potential impacts of adopting regulations that diverge from prevailing national guidance and standards, particularly with respect to industry practices and the broader advancement of water reuse. The commenter suggested incorporating frameworks such as those developed by the National Blue Ribbon Commission (NBRC) and recognizing national standards like NSF/ANSI 350 as acceptable alternatives equivalent to the prescribed pathogen control treatment trains outlined in Table 60630-1. The commenter noted that the log reduction targets (LRTs) in the proposed regulations are based on adenovirus and are not aligned with current national frameworks such as those published by the NBRC for onsite water systems, which use norovirus as a reference pathogen. The commenter also noted that “the gaps in dose-response relationship data for ingestion of adenovirus

make it inadequate for deriving widely applicable and health-protective LRTs for water reuse exposures to enteric adenoviruses”, according to EPA’s *Risk-Based Framework for Developing Microbial Treatment Targets for Water Reuse* (January 2025).

Response:

The pathogen LRTs in the proposed regulations and the pathogen LRTs in the NBRC’s “Health Risk-Based Benchmarks for Onsite Treatment of Water” were derived using a risk-based approach to achieve a specific level of human health protection. Both sets of LRTs are developed to address pathogenic microorganisms that are transmitted via fecal-oral route and may cause gastrointestinal illness.

*While the assumptions that go into deriving each set of LRTs may be different, the resulting LRTs are scientifically sound and are health-protective for the intended uses. As described in the ISOR, the State Board contracted with the National Water Research Institute (NWRI) to convene an Independent Advisory Panel on Regulations for On-Site Treatment and Reuse of Nonpotable Water (Panel) to assist State Board staff in determining the appropriate pathogen LRTs. The Panel’s risk assessment effort and recommendation for the pathogen LRTs for water sources and end uses are summarized in a scientific peer-reviewed *Journal of Water & Health* article, titled “Risk-based treatment targets for onsite non-potable water systems using new pathogen data” (Pecson et. al (2022a)). The Panel report, titled “On-Site Treatment and Reuse of Nonpotable Water – Technical Guidance” (Olivieri et al. 2021) documents the full Panel effort. The scientific basis for the proposed regulations’ pathogen LRTs has also been peer reviewed by independent, external scientific peer reviewers pursuant to subdivision (b) of section 57004 of the Health and Safety Code.*

In deriving the required pathogen LRTs, multiple potential reference pathogens were evaluated by the State Board’s Panel, including several reference viruses. Previous efforts to develop LRTs have focused on the use of culturable viruses given the uncertainty associated with interpreting the infectivity of viruses quantified with molecular techniques (e.g., norovirus). Toward this end, the LRT evaluations were conducted with culturable enterovirus and adenovirus. The evaluation showed that the LRT requirements for both culturable viruses had a high degree of consistency. Ultimately, the Panel recommended the use of adenovirus⁸, even when there was little or no difference between the pathogens within a given group. Norovirus was not selected because of: (1) the higher degree of uncertainty associated with its dose-response data and (2) the uncertainty related to the proportion of genome copies that are associated with infectious viruses. While each reference viral pathogen has limitations, the Panel concluded there was less uncertainty associated with enterovirus and adenovirus compared to norovirus.

⁸ Adenovirus is known for its greater resistance to UV disinfection compared to enterovirus. In evaluating the LRTs based on adenovirus and enterovirus, the Panel noted a high degree consistency between the two viruses with 0.13 log₁₀ increase for adenovirus compared to enterovirus.

The proposed regulations' pathogen LRTs are designated for the removal (or inactivation) of enteric viruses, Giardia cysts, and Cryptosporidium oocysts, consistent with the requirement in subdivision (a) of section 13558 of the Water Code. The approach for using enteric viruses, Giardia cysts, and Cryptosporidium oocysts in the proposed regulations is consistent with California's existing risk-based water recycling regulations (i.e., potable reuse regulations).

While adenovirus was selected as the reference pathogen in the derivation of the pathogen LRTs, it has no bearing on what pathogen or pathogen surrogate should be used in a treatment technology validation. A treatment technology's validation for its pathogen reduction capability must be based on demonstrated reduction of a pathogen that is being addressed by the treatment (or appropriate surrogate(s) for the pathogen(s)) that are used in the validation study. The selection of the pathogen(s) must be the one(s) that is most resistant to the treatment mechanism.

No revision is necessary in the proposed regulations to address the comment.

GC-22:

Commenter 17 stated that the proposed regulations favor membrane bioreactors (MBRs). The commenter stated that membrane filtration technology is equal to or better than MBRs in dealing with waste streams. The commenter also stated that during the State Board staff workshop in 2022, they presented information supporting that membrane filtration technology meets many third-party standards such as IAPMO 324 and NSF/ANSI 350 for graywater.

Response:

The proposed regulations address the onsite collection, treatment, and use of various untreated alternate water sources (onsite wastewater, graywater, stormwater, and roof runoff), which have considerable variation in water quality parameters, including pathogen levels. Alternate water sources with anticipated higher pathogen loading, such as onsite wastewater and stormwater runoff impacted by sewer line exfiltration or informal encampments, would require a biological treatment mechanism to stabilize organic matter. This step is necessary to reduce organic load and prepare the alternate source water for filtration system. MBR is selected as a part of the pathogen control treatment trains A through D because MBR has a known pathogen log crediting framework, as well as the associated surrogate for continuous process verification monitoring.

State Board staff recognize that for alternate water sources where organic matter may be lower, due to the characteristics of the collection site or the nature of a source, biological treatment may not be necessary. The proposed regulations provide flexibility in treatment technology selection within the alternate treatment train criteria in section 60634. Membrane filtration, which is intended to be inclusive of microfiltration, ultrafiltration, and reverse osmosis, was included in pathogen control treatment train E

in Table 60632-1 as a result of the commenter's feedback in State Board staff workshop in 2022. While pathogen log reduction is not assigned to membrane filtration within pathogen control treatment train E, a streamlined alternative treatment train (i.e. validation and field verification not required) to assign a pathogen log reduction value to membrane filtration with associated adjustments to UV disinfection and chlorination critical limits can be proposed for State Board and local jurisdiction review and approval.

No revisions were made to the proposed regulations as a result of this comment.

GC-23:

Commenter 17 commented that the proposed pathogen LRTs are unnecessarily stringent. The commenter stated that the LRTs are more rigorous than the original requirements set by the City and County of San Francisco, as well as those established by IAPMO and NSF/ANSI. The commenter stated that while achieving the proposed LRTs is technically feasible, doing so significantly increases system costs. The commenter noted that owners are less likely to invest in OTNWSs because of the perceived high costs unless mandated by local or state code.

Response:

State Board staff appreciate the commenter's feedback on the proposed pathogen LRTs and comparison with the pathogen LRTs required by City and County of San Francisco's Onsite Water Reuse Program. IAPMO/ANSI Z1324 (previously IGC 324) and NSF 350 (pre-2023) standards adopted the same set of pathogen LRTs as the City and County of San Francisco's Onsite Water Reuse Program.

The pathogen LRTs for the proposed regulations were built upon the pathogen LRTs published in the 2017 "Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems" (Sharvelle et al. (2017)), which are the same pathogen LRTs adopted by the City and County of San Francisco's Onsite Water Reuse Program. The pathogen LRTs for the proposed regulations are based on an Independent Advisory Panel on Regulations for On-Site Treatment and Reuse of Nonpotable Water (Panel) effort, which is summarized in "Risk-based treatment targets for onsite non-potable water systems using new pathogen data" (Pecson et. al (2022a)). The Panel report, titled "On-Site Treatment and Reuse of Nonpotable Water – Technical Guidance" (Olivieri et al. 2021) documents the full Panel effort. The proposed regulations pathogen LRTs update the published 2017 pathogen LRT requirements using a recently published dataset collected within California. The tolerable risk goal of 10^{-4} infections per person per year and pathogen dose-response models are kept the same. Exposure estimates (exposure volumes, frequencies, and exposed populations) are also kept the same, with additional uses (fire suppression, car washing, and decorative fountains) added to the evaluation.

The proposed regulations' pathogen LRTs exceed the 2017 pathogen LRTs for stormwater (an increase of 1.5 logs of virus reduction) and roof runoff (an increase of

maximum 1.5 logs of Cryptosporidium oocysts and Giardia lamblia cysts reduction). For existing OTNWS in City and County of San Francisco, the increase in pathogen reduction could be addressed by an increased disinfection efficacy (e.g. higher UV dose or chlorine disinfection dose); however, such costs cannot be determined until a case-by-case review is conducted.

No revisions were made to the proposed regulations as a result of this comment.

GC-24:

Commenter 17 stated that requiring existing systems to upgrade to new requirements in the proposed regulations may cause existing owners to abandon their water harvesting systems entirely. The commenter also noted that the goal is to encourage water conservation, and that the new requirements would discourage it.

Response:

State Board staff acknowledge the concern that the proposed regulations may discourage existing system owners from continuing their water harvesting practice. Water Code section 13558, subdivision (a) requires the State Board to adopt the proposed regulations. The requirement for bringing existing systems into compliance with the proposed regulations is mandated by Water Code section 13558 subdivision (f), and the State Board has no authority to override the mandate.

The proposed regulations are intended to provide public health-protective, statewide criteria for treatment and use of alternate water sources. Historically, the criteria for alternate water sources treatment and use have been left to the discretion of local jurisdictions, which resulted in varied approaches across the state. In the absence of statewide criteria, many local jurisdictions opted not to permit alternate water source systems beyond the use of alternate water sources for the limited use provided in the California Building Standards (i.e. subsurface irrigation using graywater or irrigation using rainwater, which are both exempted from complying with the proposed regulations). The proposed regulations support the state's goal for making conservation a way of life, as the statewide criteria expand the options for treating and using alternate water sources in lieu of using potable water for the nonpotable uses. Where feasible, the State Board has incorporated flexibility in evaluations of alternative treatment trains that may not fit into the pathogen treatment train criteria.

No revisions were made to the proposed regulations as a result of this comment.

GC-25:

Commenter 17 noted that the proposed regulations seem to focus exclusively on graywater and blackwater. The commenter recommended that rainwater and stormwater also be included within the scope of the new regulations.

Response:

The proposed regulations provide risk-based pathogen log reduction targets for roof runoff and stormwater, in addition to graywater and blackwater, in Table 60630-1. The requirements within the proposed regulations are applicable for all untreated alternate water sources provided in Table 60630-1.

No revisions were made to the proposed regulations as a result of this comment.

GC-26:

Commenter 18 noted appreciation for the distinction between the definition of “onsite treated nonpotable water” in the proposed regulations and the existing definition of “recycled municipal wastewater” in California Code of Regulations, title 22, section 60301.690. The commenter requested that “inconsistencies with Title 22 be addressed” and that “it would be more consistent for the onsite regulations to require treatment standards similar to those for Title 22 disinfected tertiary recycled water, especially given that the onsite regulations will include comparable levels of oversight through monitoring and reporting.”

Response:

The commenter is referring to disinfected tertiary recycled water defined in California Code of Regulations, title 22, section 60301.230. The “Water Recycling Criteria” (Cal. Code Regs., title 22, division 4, chapter 3) and the proposed regulations share the same goal of protection of public health, however, water treatment criteria for the two sets of regulations are not directly comparable. The Water Recycling Criteria were promulgated to address the adequacy of wastewater treatment plants and their reliability to produce recycled water; whereas the proposed regulations are promulgated to ensure that a specific health risk goal is met for specified alternate source waters for specified end uses.

The treatment standards for Water Recycling Criteria are expressed through categories of recycled water quality, which are based on the acceptable levels of constituents (such as total coliform) and disinfection standards. These standards are not based on a specific numerical health risk goal and instead use measurable water quality indicators in the treated water to confirm treatment efficacy. These water quality indicators (e.g. the concentration of total coliform bacteria not exceeding 2.2 MPN per 100 mL of recycled water) do not translate into inactivation/removal of pathogens.

Both the Water Recycling Criteria and the proposed regulations are protective of public health. As the commenter acknowledged, the criteria include comparable oversight through monitoring and reporting, which helps ensure the safety of the use of treated water across the nonpotable reuse schemes.

No revisions were made to the proposed regulations as a result of this comment.

GC-27:

Commenter 18 requested clarification whether the proposed regulations will require operator certification, training, and ongoing operational responsibilities, given that OTNWSs may also treat wastewater and blackwater. In accordance with current operator certification requirements for operating all other treatment systems, there should be clarification on the certification required to operate and maintain these onsite systems.

Response:

Subsection (b) of section 60690 of the proposed regulations requires that the responsible entity submit a signed statement in the operations plan that personnel operating the OTNWS treatment facility must possess, at a minimum, knowledge of regulatory and technical requirements, and the ability to carry out personnel tasks and functions to ensure that the OTNWS treatment facility is operating in a manner that is consistent with the local jurisdiction-approved operations plan. Possessing and maintaining this knowledge and capability is an ongoing responsibility applicable for all OTNWS treatment facility operators, regardless of the source. The proposed regulations provide the option for a local jurisdiction to include other requirements it deems necessary, including requiring personnel to obtain the state's wastewater treatment operator certification or continuing education. For example, the City and County of San Francisco Non-Potable Water Ordinance requires treatment managers to be a State of California certified Grade II wastewater treatment operator (or equivalent). If an OTNWS or the local jurisdiction's OTNWS permitting program is regulated by the Regional Board as a wastewater treatment plant, the requirement for an OTNWS operator to possess the appropriate State of California wastewater treatment operator certification automatically applies.

The commenter suggests that the operator certification requirements applied to water recycling facility operators should also apply to OTNWS treatment facility operators because both facilities treat blackwater/domestic wastewater. State Board staff disagree that the requirement for operator certification hinges on the type of sources treated. An OTNWS treatment facility that is designed and operated in accordance with the proposed regulations differs from a traditional wastewater treatment plant. An OTNWS treatment facility heavily relies on continuous process verification monitoring and automated diversion/recirculation to ensure that an alternate water source is continuously and properly treated prior to delivery for end use. While the treatment trains are comparable in complexity to a traditional water recycling plant, an OTNWS treatment train relies on Supervisory Control and Data Acquisition (SCADA) system monitoring and control to confirm at each treatment process that water is sufficiently treated before advancing to the next stages and final delivery. Some water recycling plants may incorporate some aspects of SCADA system monitoring and control in its operations but primarily relies on daily microbiological laboratory test results and operator intervention to cease delivery of recycled water to end uses.

No revisions were made to the proposed regulations as a result of this comment.

GC-28:

Commenter 18 requested clarification on which entity is responsible for enforcing water quality standards. The commenter specifically inquired whether the local jurisdiction or the Regional Board is responsible for enforcement.

Response:

The Regional Board has the discretion and authority to permit any discharges to the waters of the state or waters of the United States, which may include discharge water quality standards from OTNWSs. These authorities do not overlap with the authority of local jurisdictions for administering a program to permit OTNWSs. The proposed regulations include use area requirements that prohibit excessive ponding, pooling, or runoff to minimize impact to water quality, which will be enforced by the local jurisdiction.

No revisions were made to the proposed regulations as a result of this comment.

GC-29:

Commenter 18 requested clarification on whether pathogen control treatment train A requires a lower CT⁹ Value than pathogen control treatment train B.

Response:

Both pathogen control treatment trains A and B are expected to achieve 4 logs of enteric virus log inactivation from chlorine disinfection. Pathogen control treatment train A requires a CT of 12 mg-min/L with a required minimum influent temperature of 15°C, whereas pathogen control treatment train B requires a CT of 16 mg-min/L with a required influent temperature of 10°C; however, pathogen control treatment train A requires a UV dose of 160 mJ/cm², whereas pathogen control treatment train B requires a UV dose of 120 mJ/cm². Pathogen control treatment train A is expected to provide 8-log enteric virus, 6.5-log Cryptosporidium oocyst, and 5.5-log Giardia lamblia cyst reduction, which is higher than 7-log enteric virus, 5.5-log Cryptosporidium oocyst, and 4.5-log Giardia lamblia cyst reduction expected for pathogen control treatment train B.

No revisions were made to the proposed regulations as a result of this comment.

GC-30:

Commenter 18 provided a comment stating that the consultations with providers will allow for consideration of the impact of water conservation since those regulations were recently adopted.

⁹ The commenter is referring to “CT” within the proposed regulation text. As defined in subdivision (p) of section 60600, “CT” means the product of free chlorine residual and T10 measured at the same point, measured in milligram-minutes per liter (mg-min/L).

Response:

Water Code section 13558, subdivision (b) requires that a local jurisdiction that elects to establish a program for OTNWSs consult with water and sewer service providers that provide water or sewer service within the boundaries of the jurisdiction before adopting, repealing, or amending an ordinance that institutes a program for OTNWS installation and regulation.

Although it is outside the scope of the State Board's proposed regulations, a local jurisdiction may nonetheless consult with local water suppliers to consider the impacts of an onsite reuse permitting program on the implementation of water conservation regulations.

No revisions were made to the proposed regulations as a result of this comment.

GC-31:

Commenter 19 noted that, because nonpotable water reuse systems involve both wastewater and water treatment processes, minimum qualifications for system operators should be established. The commenter emphasized that clear operator standards would support local agencies in evaluating and approving qualified personnel.

Response:

The minimum qualifications include regulatory and technical knowledge, and the ability to carry out personnel tasks and functions to ensure that the OTNWS treatment facility is operating in a manner that is consistent with the local jurisdiction-approved operations plan. A full list of requirements is provided in subsection (b) section 60690 of the proposed regulations.

No revisions were made to the proposed regulations as a result of this comment.

GC-32:

Commenter 20 acknowledged that the proposed regulations for OTNWSs would supersede certain technical requirements in the City and County of San Francisco Public Utilities Commission's (SFPUC) existing Onsite Nonpotable Reuse Program. The commenter supports the comments submitted by SFPUC as the agency works to address these impacts.

Response:

State Board staff recognize the City and County of San Francisco's leadership in advancing onsite water reuse through adoption of the San Francisco Department of Public Health Rules and Regulations Regarding the Operation of Alternate Water Source systems, which includes risk-based pathogen LRTs, robust treatment trains to meet the LRTs, and ongoing continuous online monitoring to ensure system performance.

Throughout the development of the proposed statewide regulations, State Board staff have worked collaboratively with SFPUC and San Francisco Department of Public Health staff to anticipate and address potential impacts to the City and County of San Francisco's Onsite Water Reuse Program. State Board staff remain committed to supporting the City and County of San Francisco and other local jurisdictions with the implementation of the proposed regulations, including program efforts to transition from existing local jurisdiction ordinances to conformance with statewide regulations.

No revisions were made to the proposed regulations as a result of this comment.

GC-33:

Commenter 20 noted that the proposed OTNWS regulations require a connection to the community sewer system for fully automated diversions of off-spec water. During system downtime, blackwater and graywater must be redirected to the sewer, necessitating that the sewer system and treatment plant be capable of handling the full wastewater load from the building. The commenter emphasized that determining appropriate design criteria and capacity fees under these conditions will require coordination between the OTNWS and the local sewer agency.

The commenter noted that automated diversions and system startup or shutdown can cause sudden changes in wastewater flow and quality, potentially disrupting biological treatment. For larger systems, the OTNWS operator may need to notify the treatment plant when a diversion occurs.

The commenter also noted that, although not addressed in the draft regulations, some systems may discharge sludge from membrane bioreactors (MBRs) to the sewer—either with local agency approval or without authorization.

The commenter recommends that any technical requirements resulting from coordination between OTNWS and wastewater agencies be included in the Engineering Report and wastewater agencies should be notified when systems are commissioned or decommissioned.

Response:

Please refer to Responses GC-7, GC-8, and C.680-4. Additionally, subsection (c) of section 60672 of the proposed regulations requires the responsible entity of an OTNWS to consult with the sewer service provider and confirm the necessary requirements for diverting to the community sewer system prior to discharging.

No additional revisions other than those described in Responses GC-7, GC-8, and C.680-4 were made in the proposed regulations to address these comments.

GC-34:

Commenter 10 recommended that the proposed regulations be revised to make the treatment standards more stringent for virus inactivation. The commenter stated that public health should be the top priority in any reuse program and onsite treatment systems must meet strong standards to reduce the risk of spreading pathogens, especially with potential exposure to people and pets.

Response:

State Board staff agree that protection of public health is paramount in water reuse programs. The proposed regulations, consistent with the intent of the statutes, include health risk-based pathogen log reduction targets for the removal of pathogens (enteric virus, Cryptosporidium oocyst, and Giardia lamblia cysts). As described in the ISOR for section 60630, the proposed regulations' pathogen LRTs were developed with a risk goal of 1 in 10,000 infections per person per year (10⁻⁴ annual risk of infection). The same risk goal is used in the Federal and California surface water treatment regulations and California potable reuse regulations. The pathogen LRTs were derived using QMRAs to determine the required treatment system performance to achieve the specified health risk goal. The log reduction target for enteric viruses is based on published and scientifically peer reviewed data on exposure from multiple non-potable uses by accidental or incidental ingestion and dose-response functions for reference pathogens.

To achieve the required pathogen log reduction, the proposed regulations include a comprehensive requirement for multi-barrier treatment trains with properly validated treatment process for pathogen removal or inactivation, continuously monitored treatment process verification, and automated diversion to prevent inadequately treated alternate water source delivery to end users.

No revisions were made to the proposed regulations as a result of this comment.

Section 60600. Definitions.

C.600-1:

Commenter 8 suggested that definitions should be standardized between the California Plumbing Code and the Cross-Connection Control Policy Handbook.

Response:

Standardization between the California Plumbing Code and the Cross-Connection Control Policy Handbook is not feasible because the two documents address different regulatory subjects. The California Plumbing Code addresses the requirements applicable to premises plumbing, while the Cross-Connection Control Policy Handbook mainly addresses the protection of a public water system.

The proposed regulations rely on definitions in the California Plumbing Code and the Cross-Connection Control Policy Handbook where appropriate to the context. For

example, the proposed regulations definition for a “certified backflow prevention assembly tester” in subsection (g) of section 60600 refer certification requirements in the Cross-Connection Control Policy Handbook, because the Cross-Connection Control Policy Handbook address the necessary requirements for a “certified backflow prevention assembly tester” and the California Plumbing Code does not. Similarly, the definition of “cross-connection” in subsection (o) of section 60600 largely follows the definition of cross-connection in the California Plumbing Code, because the cross-connection control requirements within the proposed regulations are meant for premises plumbing, and an OTNWS is a part of the premises plumbing.

No revisions were made to the proposed regulations as a result of this comment.

C.600-2:

Commenter 11 suggested modifying the definition for “community sewer system” in subsection (l) of section 60600 of the proposed regulations to include private sewage collection systems with existing waste discharge requirements (WDRs) to allow installation of OTNWSs in buildings served by non-municipal sewer system.

Response:

The proposed regulations are intended to address building-scale nonpotable water treatment system installations in an urban setting served by public water systems and community sewer systems that would be subject to local jurisdiction oversight. These systems are generally not permitted by the Regional Water Boards. The proposed regulations focus on a subset of water reuse (source and type of use) for which uniform statewide standards do not currently exist and where local jurisdictions would benefit from the assurance that the standards adequately protect public health.

SB 966 exempts the use of graywater for subsurface irrigation and rainwater for surface and subsurface irrigation that are regulated by the California Plumbing Code. These reuse activities are commonly implemented by California communities and regulated by local jurisdictions under the existing California Plumbing Code standards. In other words, the proposed regulations are not imposed on these activities because there is already established standards and an existing framework for regulatory oversight.

Nonpotable water treatment systems served by private sewage collection systems or decentralized wastewater treatment systems with existing waste discharge requirements are already within the Regional Boards’ regulatory purview. In circumstances where water recycling is proposed as a part of the Regional Board permit, subsequent technical reviews of a Title 22 Engineering Report must be completed on a project-by-project basis by State Board DDW staff for compliance with California Code of Regulations Title 22. A Title 22 Engineering Report review includes review of reliability of the full system (i.e. treatment through disposal facilities). Contingency planning must address the capacity for emergency storage or disposal in case of a treatment system failure. For decentralized wastewater treatment systems,

which can either be served by a private sewage collection system or a shared-privately owned sewage collection system, the capacity for handling such variation of flows may or may not be available. It is not feasible to make such determination until a case-by-case review is performed. Impact of discharge from OTNWS into a community sewer system is the local jurisdiction's responsibility for consultation with water service or sewer service providers⁶ which is a requirement of Water Code 13558. The proposed regulations do not include criteria for adequacy of private sewage collection systems, sewage treatment systems, and disposal to environment facilities.

Furthermore, modification of the definition to include private sewage collection systems with existing WDRs will result in unnecessarily subjecting all decentralized nonpotable water treatment systems to oversight by both the local jurisdiction and Regional Boards. Adding another layer of regulatory complexity and potentially costs for complying with requirements from two regulations for existing decentralized systems would not be consistent with the intent of SB 966.

No revisions were made to the proposed regulations as a result of this comment.

C.600-3:

Commenter 11 identified a typo in subsection (n) and provided the typo highlighted in the comment letter.

Response:

The regulation text has been revised to reflect the suggested change.

C.600-4:

Commenter 11 inquired whether a collection of single-family homes can be considered as a district-scale project defined in subsection (q) of section 60600 of the proposed regulations.

Response:

No, the proposed regulations are applicable to multifamily, commercial, and mixed-use buildings. Definitions of such buildings are provided in subsections (z), (j), and (y) of section 60600 of the proposed regulations, respectively. The definition of "district-scale project" in subsection (q) specifically addresses a project that consists of a combination of one or more of multifamily, commercial, and mixed-use buildings.

No revisions were made to the proposed regulations as a result of this comment.

C.600-5:

Commenter 7 suggested the "duly authorized agent" term in subsection (r) of section 60600 of the proposed regulations be changed to operator because the term appears to match the definition and role of an operator throughout the regulation text. Commenter 7 also noted that "operator" is a much clearer and simpler term.

Response:

The regulation text has been revised to clarify the role of a duly authorized agent. A duly authorized agent can be the person in charge of the OTNWS treatment facility (a treatment facility operator), but the definition is intended to cover any individual that has been legally designated by the responsible entity as having authority for the oversight and management of the OTNWS to ensure compliance with the proposed regulations.

C.600-6:

Commenter 5 suggested that the definition of “local jurisdiction” in subsection (u) of section 60600 of the proposed regulations be revised to mean a city, county, or city and county that has authority to establish and enforce a program for OTNWSs to clarify that a jurisdiction that establishes an OTNWS program has the authority to create and enforce that program. Commenter 9 suggested that the definition be revised to include a city, county, or city and county that has an existing department of public health and has the means to monitor and test all levels of recycled water systems.

Response:

The regulation text in subsection (u) has been revised to include Commenter 5’s suggestion. A local jurisdiction that has the authority to establish and enforce the program must have the capability to determine compliance, which includes the capability of reviewing water quality monitoring results, if applicable. While the local jurisdiction has this capability, the burden of monitoring, including sampling and analysis, would fall on the responsible entity as the regulated entity, not the local jurisdiction (the regulator).

C.600-7:

Commenter 13 noted that the definition of “membrane bioreactor” (MBR) in subsection (x) of section 60600 of the proposed regulations is vague because the term “bioreactor” is not defined anywhere else in the regulations. Commenter 13 assumed that the State Board’s intent is to refer to the activated sludge process, but cautions that this term could be interpreted to mean other processes that do not necessarily achieve the performance sought out by the proposed regulations because there are no limits placed on the design or operating parameters for the membrane bioreactor (besides the effluent turbidity) and no criteria (such as biochemical oxygen demand over a 5-day period) or other measure of the treated water’s organic strength. Commenter 13 suggested the definition of MBR should include the design and operation specifications in the Australian WaverVal Tier 1 operating envelope, or specify that the feed to the filtration process be “oxidized wastewater” as defined in the title 22 of the California Code of Regulations.

Response:

The performance specification for an MBR is addressed in subsection (c) of section 60632 of the proposed regulations; however, State Board staff agree with the suggestion to clarify the definition of MBR by specifying that it consists of biological

treatment capable of producing biologically stable wastewater. The regulation text has been revised to reflect this suggested change.

C.600-8:

Commenter 5 recommended amending the definition for “multifamily residential building” in subsection (z) of section 60600 of the proposed regulations to clarify whether it includes townhouses and provided suggested language to the regulatory text to state either: “and does not include townhouses” or “and includes townhouses.”

Response:

The definition of “multifamily residential building” is intended to not include townhouses, as a townhouse unit, as defined in the 2025 California Building Code, is a single-family dwelling unit. The scope of the proposed regulations does not address onsite treatment of and reuse of nonpotable water in single-family residences. The regulation text has been revised to reflect the suggested change.

C.600-9:

Commenter 11 inquired whether the proposed regulations would not apply to a site that is not connected to a community sewer system, as the definition of “onsite treated nonpotable water system” in subsection (ff) of section 60600 of the proposed regulations describes a system that meets all three conditions. Commenter 11 also inquired whether the proposed regulations would apply to a neighboring property receiving onsite treated nonpotable water. Commenter 11 noted that existing recycled water regulations allow for use of recycled water off-site (on nearby properties) as long as it is included and approved in the permit application.

Response:

The proposed regulations apply to onsite treated nonpotable water systems meeting the definition in subsection (ff) of section 60600. A nonpotable water treatment system serving a facility that is not connected to a community sewer system does not meet the definition in the proposed regulations. The use area where onsite treated nonpotable water will be delivered by an OTNWS treatment facility must be included as a part of the project application with the local jurisdiction. If crossing property lines, then the project must be permitted as a district-scale project.

No revisions were made to the proposed regulations as a result of these comments.

C.600-10:

Commenter 5 recommended eliminating the reference to the specific building standard year and proposed the following language, “most recent edition of the California Plumbing Code,” to avoid frequently amending the regulation text to match the most recent version of the California Plumbing Code. For the “potable water” definition in subsection (hh) of section 60600 of the proposed regulations, Commenter 5 recommended that the regulation text reference chapter 2, “Definitions,” of the California

Plumbing Code, to remove the need for code maintenance if the model code changes and requires updates to a specific section of the Code.

Response:

The regulation text has been revised to delete the definition of “potable water,” including its references to the California Plumbing Code. In its place, the State Board provided a definition of “public water system,” which is a necessary addition to the proposed regulations as requirements related to supplemental water supply and cross-connection control require notification to or involvement of a public water system.

C.600-11:

Commenter 11 requested clarification on whether alternative water sources not addressed in the proposed regulations are exempt or unregulated. Commenter 11 also inquired whether there will be issues with comingling sources not addressed by the proposed regulations with regulated alternate water sources for treatment by an OTNWS.

Response:

The proposed regulations provide criteria for untreated alternate water sources specified in the subsection (rr) of section 60600 of the proposed regulations. All other nonpotable water sources are not subject to the proposed regulations but may be subject to other state or local regulations. As specified in subsection (c) of section 60610, other nonpotable water sources not addressed by the proposed regulations are prohibited from entering the OTNWS, unless approved as a supplemental source of supply to the OTNWS.

No revisions were made to the proposed regulations as a result of these comments.

Section 60602. Limitations of this Chapter.

No comments received.

Section 60604. Implementation Scale.

C.604-1:

Commenters 7 and 11 requested further clarification on what buildings are considered commercial buildings.

Response:

The regulation text has been revised to clarify the definition of “commercial building” in subsection (i) of section 60600 of the proposed regulations to exclude buildings or portions of buildings that are used for medical care, mental hospitals, other facilities operated by a public agency for the treatment of persons with mental disorders, adult care facilities, childcare facilities, and other buildings or portions of buildings serving similar functions and/or populations, as determined by the State Board.

C.604-2:

Commenter 11 suggested that the proposed regulations should include applicability to single-family homes, including the applicability of “district-scale project” definition to include a collection of single-family homes.

Response:

The onsite collection, treatment, and use of nonpotable water for single-family homes is outside the scope of these proposed regulations. Consistent with the SB 966 (2018) mandate, the proposed regulations are only applicable to multifamily, commercial, and mixed-use buildings. Definitions of such buildings are provided in subsections (z), (j), and (y) of section 60600 of the proposed regulations, respectively. The definition of “district-scale project” in subsection (q) of section 60600 specifically addresses a project that consists of a combination of one or more of multifamily, commercial, and mixed-use buildings.

No revisions were made to the proposed regulations as a result of this comment.

Section 60606. Local Jurisdiction Annual Report.

C.606-1:

Commenter 7 requested clarification on subsection (a)(3) of section 60606 of the proposed regulations requiring the local jurisdiction annual report to include a “summary of reported minimum and maximum values for continuous process verification monitoring parameters organized by untreated alternate water source types.”

Commenter 7 stated that reporting on this granularity of data will be extremely time- and resource-consuming for locals, especially for jurisdictions like the City and County of San Francisco, which regulates many OTNWSs.

Response:

State Board staff appreciate this comment and agree that the granularity of monitoring data from each individual site will be too time-consuming to compile for the local jurisdiction. The purpose of the summary is to provide at-a-glance, program-wide information on continuously monitored parameters for each alternate water source. State Board staff reconsidered the need for this information and decided that the information is not necessary as local jurisdiction program regulatory compliance information is already sought in subsections (a)(4) and (a)(5). The requirement for a “summary of reported minimum and maximum values for continuous process verification monitoring parameters organized by untreated alternate water source types” has been removed from the regulation text, and the subsequent subsections have been renumbered.

C.606-2:

Commenter 7 suggested that the State Board consider developing an annual report template or process to streamline the proposed regulations’ reporting requirements.

Response:

Local jurisdictions that elect to establish a program for onsite treated nonpotable water systems are responsible for and have the discretion to establish permitting program procedures, including the format of reports necessary to meet the requirements of section 60606 of the proposed regulations. Once the regulations are effective, State Board staff can assist local jurisdictions by providing feedback on the local jurisdiction annual report format.

No revisions were made to the proposed regulations as a result of this comment.

C.606-3:

Commenter 7 stated that the subsection (a) of section 60606 deadline of February 1st for local jurisdictions to submit an annual report to the State Board would be difficult to comply with. Based on its existing program experience, the City and County of San Francisco noted that operators require approximately one month to compile and submit their facility reports to the local jurisdiction. Commenter 7 suggested the proposed regulations extend the annual report submission due date.

Response:

The proposed regulations have been revised. Subsection (b) allows the local jurisdiction to request an extension of up to sixty (60) days for submittal of an annual report, given a written request (mailed, faxed, or e-mailed) is provided to the State Board by February 1st.

Section 60608. OTNWS In Operation Before the Effective Date of the Regulations.

No comments received.

Section 60610. Source Specifications.

C.610-1:

Commenter 11 suggested that subsection (a) of section 60610 of the proposed regulations be revised to refer to all “alternate water sources” instead of listing roof runoff, stormwater, graywater, or onsite wastewater specifically. Commenter 11 noted the more general reference would allow the local jurisdiction program administrator to “manage efforts accordingly,” and noted that the City and County of San Francisco’s program allows for condensate water to be treated and reused in an OTNWS. The commenter noted that the definition in subsection (rr) of section 60600 of the proposed regulations and subsection (a) of section 60610 do not include this alternate water source, which creates uncertainty on whether alternate water sources not addressed by the proposed regulations can be collected and treated by an OTNWS subject to the proposed regulations. Commenter 11 further stated that if the flexibility is not provided, “dedicated piping would drive up construction costs to segregate this flow and loss of easily treated water leading to more stress on public infrastructure as a result.”

Response:

State Board staff agree that the regulation text can be simplified by not restating specific alternate water sources (roof runoff, stormwater, graywater, or onsite wastewater) in subsection (a). The regulation text has been revised to refer to “untreated alternate water sources as defined in subsection (rr) of section 60600.” Consistent with the “graywater” definition in section 179122.12 of the Health and Safety Code, condensate water is a source water that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Subsection (rr) of section 60600 has been revised to clarify that the “graywater” definition includes condensate water. This approach is also consistent with the 2022 California Plumbing Code section 1506.1, which lists condensate water as an approved nonpotable water source to be collected for reuse by graywater systems.

C.610-2:

Commenters 7 and 11 raised concerns regarding the prohibition on using the OTNWS treatment facility to treat sources not addressed by the regulations or sources approved as a supplemental source of water for the OTNWS as provided in subsection (c) of section 60610 of the proposed regulations.

Commenter 7 suggested modifying the regulation text to provide the local jurisdiction the discretion to determine whether an alternate water source meets the requirements of the proposed regulations. Commenter 7 noted that with this flexibility, existing OTNWSs permitted under the City and County of San Francisco’s Onsite Water Reuse Program that are treating sources not currently addressed in the proposed regulations (foundation drainage and condensate water) will be able to continue their operations once the regulations become effective, and will continue contributing significant potable water savings. Commenter 7 provided two examples of these types of projects: a foundation water treatment system at Moscone Center, which offset 2.5 million gallons of potable water use in 2024, and a foundation water system at Energy Center San Francisco, which offset 34 million gallons of potable water use in 2024.

Commenter 11 raised concerns that this section of the regulations would prohibit the use of private water wells and would limit OTNWSs in rural areas that have no access to a municipal water supply from a public water system.

Response:

It is the State Board’s understanding that Senate Bill 966 (2018) was passed to require the State Board to adopt state regulations for risk-based water quality standards, which includes risk-based pathogen log reduction targets and corresponding monitoring practices to ensure a consistent practice of alternate water source treatment suitable for specified end uses. Considering this statutory intent, the State Board interprets that this determination cannot be delegated to local jurisdictions.

Limiting alternate water sources that can be treated by OTNWSs ensures that an OTNWS that is designed and operated in accordance with the proposed regulations will achieve the required log reduction to ensure public health protection. Allowance for using the OTNWS to treat other alternate water sources that have not been specifically evaluated through the State Board's risk assessment and criteria development was not contemplated within these proposed regulations.

Although the State Board possesses the statutory authority to allow other alternate water sources, there are two limitations on revising the proposed regulations to include a provision that allows evaluation of other alternate water sources currently not addressed by the proposed regulations:

- *The determination of a risk-based log reduction target as required by the Water Code section 13558, subdivision (a)(1) would require an external contract to perform quantitative microbial risk assessment, as this traditional risk-assessment expertise does not exist within the State Board.*
- *The proposed regulation text must clearly present the State Board's process for consideration for approving alternate water sources on a case-by-case basis.*

To address Commenter 7's concerns regarding foundation water and condensate water as additional alternate water sources, State Board staff determined foundation water and condensate water fit under the definition of "graywater" as defined in subsection (t) of section 60600 of the proposed regulations, which has been revised to clarify that the definition includes foundation water and condensate water. This approach is also consistent with the 2022 California Plumbing Code section 1506.1, which lists foundation water and condensate water as approved nonpotable water sources to be collected for reuse by graywater systems.

To address Commenter 11's concern on limitation to OTNWSs in rural areas, the proposed regulations are intended to address building-scale nonpotable water treatment system installations in an urban setting served by public water systems and community sewer systems that are subject to local jurisdiction oversight, not rural decentralized alternate water systems. Decentralized alternate water systems would require additional considerations regarding the availability of reliable sources if no replacement supply is available for the building occupants/tenants.

Other than revision to subsection (t) of section 60600, no other revisions are necessary for subsection (c) to address the comments.

Section 60620. Allowed Indoor Uses.

C.620-1:

Commenters 7, 11, and 20 noted that the allowable indoor uses provided in subsection (a) of section 60620 of the proposed regulations are very limited and should be expanded. Commenter 7 suggested the proposed regulation text be revised to state that the local jurisdictions may allow additional indoor uses upon a determination that the

additional indoor uses meet the requirements of the proposed regulations. Commenter 7 also noted that the City and County of San Francisco Onsite Water Reuse Program currently allow end uses not explicitly addressed in the proposed regulations (cooling tower make-up and street sweeping), and the modification would allow the City and County of San Francisco to continue permitting these end uses.

Commenters 11 and 20 compared the allowable indoor uses in the proposed regulations with the allowable end uses in the existing California Code of Regulations, title 22, sections 60301 through 60316 for municipal recycled water, and asserted that the same end uses should be allowed in the proposed regulations. Commenter 20 provided an example of use of undisinfected secondary-treated recycled water to be used for irrigating orchards and vineyards where the recycled water does not come into contact with the edible crop. Commenter 20 indicated the OTNWS regulations should likewise allow irrigation of fruit trees and vines, which are often incorporated into urban landscaping, as well as use in landscape impoundments, which California Code of Regulations, title 22, section 60305 allows for disinfected secondary-23 recycled water. Commenter 20 suggested that a new subsection be provided to state that the State Board can authorize additional indoor or outdoor uses for local jurisdictions upon consultation and receipt of written approval.

Response:

Incorporation of additional end uses into the proposed regulations that: (1) are not addressed by the State Board's risk assessment (i.e., recreational impoundments, food crop irrigation); or (2) require additional considerations for use area requirements (i.e., fire suppression), warrants the same or equivalent level of effort undertaken in this rulemaking for determining the appropriate risk-based log reduction targets. End uses that are currently not addressed by the proposed regulations may be subject to other state regulations, such as the California Building Standards.

Although the State Board possesses the statutory authority to allow these additional end uses, there are two limitations on revising the proposed regulations to include a provision that allows the State Board to expand additional end uses to match existing end uses allowed for municipal recycled water, or to authorize additional end uses on a case-by-case basis within the current rulemaking effort:

- The determination of a risk-based log reduction target as required by the Water Code section 13558, subdivision (a)(1) would require an external contract to perform quantitative microbial risk assessment, as this traditional risk-assessment expertise does not exist within the State Board.*
- The proposed regulation text must clearly present the State Board's process for consideration for approving additional end uses on a case-by-case basis.*

To address Commenter 7's inquiry on street sweeping and cooling tower uses:

- It is State Board staff's understanding that a street sweeper sprays water onto the road surface to suppress fugitive dust and loosen stuck particles ahead of*

sweeping. The use of onsite treated nonpotable water for street sweeping would be considered dust control, which is an allowed use within the proposed regulations.

- *The use of onsite treated nonpotable water for cooling towers is not addressed in the currently proposed regulations. The use, however, is addressed within the existing California Building Standards, which the local jurisdictions will need to comply with. The State Board does not have the internal capability or external contracting funds to conduct the necessary risk assessment by the time cooling tower use was raised in the 45-day comment period. The State Board will be addressing the requirement for cooling tower use in a future rulemaking effort.*

No revision is necessary in the proposed regulations to address these comments.

C.620-2:

Commenters 7 and 11 suggested the proposed regulations allow clothes washing machines that have internal heating elements and clothes washing machines that are heated using natural gas or other acceptable heating sources.

Response:

The regulation text has been revised to reflect the suggested changes.

Section 60622. Allowed Outdoor Uses.

C.622-1:

Commenter 7 suggested that subsection (a) of section 60622 of the proposed regulations be revised to allow the local jurisdiction to approve other end uses not addressed in the proposed regulations if they meet the requirements of the proposed regulations. The commenter stated that the City and County San Francisco currently allow OTNWSs to use onsite treated nonpotable water for cooling tower makeup and street sweeping, which are not listed in subsection (a).

Response:

It is the intent of the statutes to have uniform statewide criteria established to ensure statewide consistency on risk-based water quality standards for the onsite treatment and reuse of nonpotable water; therefore, an allowance within the proposed regulations for local jurisdiction approval of other end uses on a case-by-case basis is contrary to the statutory intent. Please refer to response C.620-1 for cooling tower makeup and street sweeping end uses. No revision is necessary in the proposed regulations to address the comment.

C.622-2:

Commenter 7 requested clarification on the type of car washing allowed in subsection (a) of section 60622, and whether the proposed regulations intend to exclude commercial car washing.

Response:

The proposed regulations do not differentiate between types of car washing (commercial or otherwise) in subsection (a); however, the risk assessment assumes exposure from handwashing cars once a month. Commercial car washes, unattended or automated facilities where no manual washing by staff occurs, are allowed.

No revision is necessary in the proposed regulations to address the comment.

C.622-3:

Commenter 7 inquired whether existing OTNWSs currently using onsite treated nonpotable water for cooling towers will be allowed to continue operating.

Response:

The use of onsite treated nonpotable water for cooling towers is not addressed in the currently proposed regulations. The use, however, is addressed within the existing California Building Standards, which the local jurisdictions will need to comply with. The State Board does not have the internal capability or external contracting funds to conduct the necessary risk assessment by the time cooling tower use was raised in the 45-day comment period. The State Board will be addressing the requirement for cooling tower use in a future rulemaking effort.

No revision is necessary in the proposed regulations to address the comment.

C.622-4:

Commenters 8, 11, 18, and 20 requested that the proposed regulations allow the end uses allowed under title 22 of the California Code of Regulations. Commenter 11 suggested allowing end uses such as cooling tower makeup, firefighting, snow making, road cleaning, dust control. Commenter 18 suggested allowing end uses for fire suppression, irrigation for edible crops, indoor landscaping irrigation, sewer line flushing, hardscape cleaning, and landscape impoundment. Commenter 20 suggested end uses for disinfected secondary recycled water and undisinfected secondary recycled water, such as orchard and vineyard irrigation and landscape impoundments, be allowed within the proposed regulations.

Commenters 18 and 20 suggested a regulation text revision to allow the State Board to authorize additional indoor or outdoor uses for local jurisdictions when it deems it appropriate. Lastly, Commenter 18 suggested that the proposed regulations be revised to allow “irrigation” instead of specifying ornamental plant and landscape irrigation for consistency with the authorizing statutes.

Response:

Please refer to response C.620-1. The pathogen log reduction for irrigation is based on exposure routes for dust suppression and municipal irrigation, excluding food crops; therefore, a broad “irrigation” end use is not provided in the proposed regulations.

No revision is necessary in the proposed regulations to address these comments.

C.622-5:

Commenter 14 suggested that subsection (a) of section 60622 of the proposed regulations be revised to remove language that refers to water reuse for “lawns and ornamental vegetation” because it is important to advocate for drought-tolerant and native plants in areas to support water efficiency regulations and landscape transformation that provides co-benefits, such as habitat for native fauna.

Response:

State Board staff appreciate the commenter’s recommendation to revise subsection (a) and the emphasis on promoting drought-tolerant and native vegetation. “Lawns and ornamental vegetation” are intended to be inclusive of all variety of landscape plantings to support responsible water management and water conservation where potable water demand for nonpotable water uses can be practically implemented.

No revision is necessary in the proposed regulations to address the comment.

C.622-6:

Commenter 14 recommended removing the reference to car washing under subsection (a) of section 60622 of the proposed regulations or inserting language to ensure this activity does not result in untreated urban runoff.

Response:

State Board staff acknowledge the concern regarding potential urban runoff from car washing. Subsection (e) of section 60624 of the proposed regulations has been revised to require outdoor uses of onsite treated nonpotable water to be used in a manner that will not result in excessive ponding, pooling, or runoff.

C.622-7:

Commenters 13 and 15 recommended that subsection (a) of section 60622 of the proposed regulations be revised to include onsite treated nonpotable water reuse for cooling towers. Commenter 19 requested clarification whether cooling towers and boiler water uses are approved end uses, as they are not listed in the proposed regulations.

Response:

Please refer to response C.622-3. No revision is necessary in the proposed regulations to address these comments.

Section 60624. Use Area Requirements.

C.624-1:

Commenters 7, 11, and 13 requested clarification or revision of subsection (i) of section 60624 of the proposed regulations, which prohibits indoor uses of onsite treated

nonpotable water for any building that produces or processes food products or beverages. Commenters 7 and 13 inquired whether “any building that produces or processes food products or beverages” in subsection (i) includes restaurants or bakeries. Commenter 11 suggested that the proposed regulations be revised to allow indoor use if nonpotable plumbing is not present in wet walls located within food service or production areas.

Response:

Subsection (i) is intended to apply to facilities such as food processing plants, restaurants, bottling plants, bakeries, and similar establishments where food or beverages are prepared, handled, or manufactured; however, this prohibition does not apply to buildings whose primary function is not the production or processing of food or beverages as illustrated in the proposed regulations by inclusion of cafeterias, snack bars, or break rooms located within office buildings or other facilities that do not primarily engage in food production. The local jurisdiction has the discretion to determine the primary function of a building and require any additional measures to ensure that any portion of the building designated for food processing or production is guarded against cross-connection. While this can include prohibiting the presence of nonpotable plumbing within wet walls located within food service or production areas as suggested by commenter 7, it should not be the only safeguard for protection from potential cross-connection. Additional precautions, such as regularly scheduled cross-connection tests, requirements for maintaining accurate plumbing as-built plans, or other similar requirements that provide a significant assurance that the risk from potential cross-connection is addressed should be considered.

As stated in the ISOR, this requirement is necessary to ensure that certain types of facilities do not receive onsite treated nonpotable water for indoor use due to their compounded risk for exposure through food or beverage contamination with subsequent human ingestion. Plumbing infrastructure within a building that uses onsite treated nonpotable water for toilet flushing can cross-connect with plumbing systems that serve food preparation or processing areas. Introducing cross-connection risk into the building increases the likelihood of accidental contamination of food and beverages and compounds the exposure to pathogens in nonpotable water through human ingestion.

No revision is necessary in the proposed regulations to address the comment.

Section 60630. Pathogen Log Reduction Targets.

C.630-1:

Commenter 7 stated that the City and County of San Francisco does not have requirements for subsurface irrigation using rainwater and graywater. The commenter inquired whether subsurface irrigation using rainwater and graywater would need to comply with the proposed regulations.

Response:

The proposed regulations have been revised to clarify that the requirements apply to surface irrigation. Subsurface irrigation is not addressed by the proposed regulations.

C.630-2:

Commenter 16 recommended that Table 60630-1 in the proposed regulations be amended to note that the pathogen LRTs were developed with adenovirus as the reference pathogen. The commenter stated this amendment is important because it clarifies that the pathogen log reduction targets for enteric viruses are based on adenovirus and the pathogen control treatment trains process verification monitoring setpoints are based on adenovirus inactivation. The commenter states that the clarification will significantly impact the determination of equivalent log reduction credits for projects proposing alternative treatment trains.

Response:

Please refer to response GC-21. No revision is necessary in the proposed regulations to address the comment.

Section 60632. Pathogen Control Treatment Train

C.632-1:

Commenter 1 observed that color removal is almost always an issue for recycled water generated from blackwater using pathogen control treatment train A in the proposed regulations and would need to include a treatment step to address this. The commenter inquired whether the proposed regulations will require treatment to address color removal, and if not, whether a treatment train that includes a treatment process to address color removal will be considered an alternative treatment train.

Response:

The pathogen control treatment trains in the proposed regulations consist of the treatment processes and the corresponding continuous process verification monitoring setpoints or limits to achieve the pathogen log reduction targets. Supplementary treatment processes, such as those to address color removal or pretreatment are not assessed for its pathogen reduction/removal capability and are not counted toward pathogen log reduction/removal capability of the treatment train. These supplementary treatment processes can be added to a pathogen control treatment train and would not be considered an alternative treatment train. State Board staff acknowledge that these supplementary treatment processes (e.g. for color removal or odor control) are likely necessary for client/end-user acceptance. That said, the purpose of the proposed regulations is to address the pathogen log reduction/removal to achieve the acceptable risk for nonpotable use.

No revision is necessary in the proposed regulations to address the comment.

C.632-2:

Commenter 1 stated that the requirement to use NSF 55 Class A certified UV disinfection systems subsection (b) of section 60632 of the proposed regulations may have unintended consequences given that there are very few UV disinfection systems that are NSF 55 Class A certified with validation below 70% ultraviolet transmittance (UVT). Thus, it may be necessary to include an additional step to increase the UVT above 70%. Commenter 1 also noted the use of multiple UV reactors (up to 6) for systems treating blackwater, especially with smaller flows, would result in warmer effluent. This may result in the need for dilution or heat exchange to keep the maximum storage tank temperature from exceeding 25°C.

Response:

The processes provided in the pathogen control treatment trains are the minimum processes with associated critical limits to ensure that the pathogen log reduction targets are met. Depending on the source water and technology availability, pretreatment or intermediate treatment steps to produce water with lower UVT may be needed, although a pathogen log reduction credit would not be accounted for unless reviewed as an alternative to the pathogen control treatment train.

State Board staff appreciate these comments as they raise the impracticality of the requirement for pathogen control treatment trains that rely on NSF 55 Class A certified UV disinfection systems for maintaining the temperature of onsite treated nonpotable water in storage tanks and the distribution system. Please also see response to C.678-1. The proposed regulation text has been revised to delete subsection (a) and subsection (b) in section 60678.

C.632-3:

Commenter 1 stated that the requirement to maintain no more than 1 gpm/100 gallons, under subsection (d) of section 60632 of the proposed regulations does not allow for the use of a pipe contactor without conducting a tracer study. Given the space constraints with in-building systems, the commenter stated pipeline contactors are almost always used when using chlorine disinfection. Without the allowance, these projects will be required to conduct a separate tracer study. The commenter suggested that the regulations be revised to allow for a default pipeline contactor option such as what is allowed by the City and County of San Francisco Onsite Water Reuse Program, which has a default baffling factor of 0.6 provided pipeline length to diameter ratio (L/D) > 40 and Reynold's number (Re) >4,000. The commenter stated this would limit tracer studies to the exceptions where more aggressive designs are warranted.

Response:

State Board staff appreciate the suggestion for streamlining the requirement to ensure effective chlorine disinfection. A default baffling factor of 0.1 is based on the recommendation by WaterSecure (2017b) when a tracer study is not completed. An alternative baffling factor can be proposed as part of an alternative treatment train.

While no revision was made to section 60632 as a result of this comment, the proposed regulations have been revised to add subsection (c) to section 60634 to allow a streamlined review of a treatment train that consists of treatment processes meeting the requirements of subsections (b) through (e) of section 60632, which includes a chlorine disinfection treatment process.

C.632-4:

Commenters 1 and 13 requested that the State Board consider revising subsection (a) of section 60632 of the proposed regulations to add a pathogen control treatment train that includes MBR – reverse osmosis (RO) process – UV disinfection. The RO process is a well-proven technology and can be easily validated online using electrical conductivity monitoring. Commenter 1 acknowledged that the treatment train can be proposed as an alternative, but noted it seems unnecessary to put the process through an extensive validation process when it is a proven treatment train for wastewater reuse. Commenter 13 also noted that reverse osmosis or ozonation are necessary to produce effluent with no noticeable color.

Response:

While no revision was made to section 60632 as a result of these comments, the proposed regulations were revised to add subsection (c) to section 60634 to allow a streamlined review of a treatment train that consists of treatment processes meeting the requirements of subsections (b) through (e) of section 60632. If the RO process is a membrane filtration meeting the specification in subsection (e) of section 60632, a validation study and field verification requirements in subsections (b)(2) and (b)(3) of section 60634 would not be required. An MBR – RO – UV disinfection treatment train will need to be reviewed as an alternative treatment train but can be evaluated under the streamlined review process.

C.632-5:

Commenter 4 stated the requirement that an MBR be included in all pathogen control treatment trains for stormwater is technically infeasible. The commenter stated this infeasibility is due to a mismatch between the intermittent nature of stormwater in California and the continuous nature of MBR technology. The commenter explained that in situations where there are only a handful of stormwater events annually, MBR is impractical for stormwater treatment. The microbial community in the MBR must be fed, circulated, and maintained (not too hot, not too cold) during the long inactive periods between rain events. Stormwater that has low bacterial or organic loading would also need to be supplemented with a food source to maintain the microbial community. Requiring MBR across the board would be costly and not aligned with the risk associated with individual stormwater capture and reuse projects.

Response:

The treatment processes in the pathogen control treatment trains are selected based on the collective processes' capability to provide multi-barrier treatment and adequate

pathogen log reductions for the untreated alternate source waters addressed by the proposed regulations. While pathogen control treatment trains A and B, which address stormwater, include an MBR process, the proposed regulations do not specify that an MBR process must be used in all treatment trains for treatment of stormwater. Alternative treatment trains which do not include an MBR process can be proposed to the local jurisdiction for approval.

No revision is necessary in the proposed regulations to address the comment.

C.632-6:

Commenter 11 commented on Table 60632-1 requiring MBR treatment of stormwater and/or roof runoff in pathogen control treatment trains A, B, C, and D. The commenter stated that rainwater and stormwater have limited strength to support a biological colony in an MBR and would make operation of an MBR difficult due to inadequate biomass. The commenter noted that making MBR treatment for stormwater and roof runoff optional allows the owner flexibility if they are willing to pay for the extra O&M, but it is not the most ideal technology.

Response:

Table 60632-1 lists pathogen control treatment trains and untreated alternate water sources allowable for treatment by the treatment train based on the required pathogen log reduction associated with each untreated alternate water source. For example, State Board staff anticipate that Train A provides up to 8 logs virus/ 6.5 logs Cryptosporidium oocysts/ 5.5 logs Giardia lamblia cyst reductions/inactivation. Indoor use of roof runoff requires 1.5 logs Giardia lamblia cyst reduction, and outdoor use of roof runoff requires 1.0 logs Giardia lamblia cyst reduction. In Table 60632-1, Train A is allowable for treatment of onsite wastewater, stormwater, graywater, and roof runoff, because Train A should be able to provide the required log reduction targets for all untreated alternate water source specified in Table 60630-1.

State Board staff agree that project proponents and designers must consider the applicability of source water characteristics in the selection of the appropriate pathogen control treatment train. While MBR may not be the ideal treatment process for source waters that potentially have sufficient biological loading to sustain MBR biomass, which would potentially warrant additional maintenance or upkeep, the listed pathogen control treatment trains provide sufficient pathogen log reduction capability to address the required pathogen log reduction. Stormwater quality would vary from site to site, and some sites may benefit from the use of MBR to address biological loading.

State Board staff recommend that project proponents and their designers consider site-specific characterization to decide whether Train B is appropriate for use or to pursue an alternative to pathogen control treatment train, which has been revised to streamline approvals for alternative treatment trains that solely consist of treatment processes meeting the requirement of subsections (b) through (e) of section 60632.

No revision is necessary in the proposed regulations to address the comment.

C.632-7:

Commenter 11 recommended revising Table 60632-1 to allow stormwater as an untreated alternate water source for pathogen control treatment trains E and F. The commenter stated this revision should be allowed if LRTs are being met given that stormwater can be readily filtered and disinfected.

Response:

An alternative treatment train using the same treatment processes that make up pathogen control treatment trains E and F can be submitted for local jurisdiction approval to address stormwater. The pathogen control treatment train requirements within the proposed regulations are intended to address a short list of treatment train options but is not intended to limit the extent of variety of treatment trains that can be proposed. Table 60632-1 was not revised based on this comment, but the proposed regulations have been revised to add subsection (c) to section 60634 to allow a more streamlined review process for an alternative treatment train that consists of a treatment process that meets the requirement of section 60632.

C.632-8:

Commenter 11 inquired whether UV units validated under the National Water Research Institute (NWRI) 2012 Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse protocols will be allowed under subsection (b) of section 60632 of the proposed regulations. The commenter stated that the NWRI standard has been utilized heavily for onsite blackwater and graywater permitting historically; therefore, these systems should be allowed without forcing the UV vendors to retest to meet the NSF/ANSI 55 standard. The commenter also stated that prohibiting UV units that already meet NWRI validation protocols will disqualify many units that could be otherwise used effectively and provide a higher level of performance.

Response:

UV disinfection systems validated under the NWRI 2012 UV Disinfection Guidelines for Drinking Water and Water Reuse protocols require review and approval of site-specific spot-check bioassays as required by the NWRI guidelines, which local jurisdictions may or may not have resources to review and approve. These systems can be proposed as a part of alternative treatment trains for the local jurisdiction's (and subsequently the State Board's) review and approval. No revision is necessary in the proposed regulations to address the comment.

C.632-9:

Commenter 14 recommended that the proposed regulations be revised to allow the use of landscape transformation and nature-based stormwater capture as part of a possible treatment option under section 60632 of the proposed regulations. The commenter

stated that landscape transformation includes the use of native plants, infiltration galleries, bioswales, and rain gardens.

Response:

The proposed regulations allow for consideration of alternatives to pathogen control treatment trains in section 60634. Landscape transformation and nature-based stormwater capture can be proposed as part of an alternative treatment train as long as the requirements for an alternative treatment train are satisfactorily met. No revision is necessary in the proposed regulations to address the comment.

C.632-10:

Commenter 16 recommended revising subsection (b) of section 60632 of the proposed regulations to reflect the current NSF 55 standard. The commenter recommended that the UV specification be revised to NSF/ANSI 55-2024.

Response:

The regulation text has been revised to reflect the suggested change.

C.632-11:

Commenter 16 suggested a regulation text revision by replacing the turbidity standards in subsections (e)(1) and (e)(2) of section 60632 of the proposed regulations with “the specified operational parameters for chlorine disinfection processes.” The commenter also suggested that effluent turbidity of membrane filtration process filtrate be set to a maximum of 2 NTU for pathogen control treatment train E. Commenter 16 inquired why the membrane filtration process is required to meet the turbidity criteria in subsections (e)(1) and (e)(2), even though it is not granted log reduction credit. Commenter 16 also noted that UV disinfection system has its own operational parameters for UV transmittance, and, thus, having the 0.2 NTU turbidity limit is not justified for UV disinfection system as well.

Response:

The turbidity standards in subsections (e)(1) and (e)(2) are intended to be performance standards for membrane filtration processes such as microfiltration, ultrafiltration, and reverse osmosis, although it also serves as a pretreatment for the influent into the disinfection process. Inclusion of the turbidity standards would prevent lackluster or poor maintenance practices. No revision is necessary in the proposed regulations to address the comment.

Section 60634. Alternatives

C.634-1:

Commenter 4 suggested that the section be amended to allow the local jurisdiction to consider alternative treatment approaches for stormwater sources. The commenter noted: “The local jurisdiction may propose alternative treatment approaches that do not achieve the log reduction suggested in Table 60630-1 for 1) stormwater sources that

have low concentrations of pathogens (e.g., <1,000,000 bacterial count) and/ or 2) are applied in a way that allows significantly reduced exposure risk (e.g., private, unoccupied hillsides, <20 people exposed per day).”

Response:

Section 60634 of the proposed regulations is intended to specifically address an alternative to the pathogen control treatment trains. It is State Board staff’s understanding that the commenter is seeking revision to the proposed regulations to address an untreated alternate water source that is not addressed by the proposed regulations (i.e., stormwater sources that have low concentration of pathogens) and an end use that is not addressed in the proposed regulations (i.e., restricted access irrigation). Please see response to C.620-1.

No revision is necessary in the proposed regulations to address the comment.

C.634-2:

Commenter 16 recommended amending subsection (b) of section 60634 of the proposed regulations to add language that states alternative pathogen control treatment trains constructed solely of technologies and processes listed in subsections (b) through (e) of section 60632 are exempt from subsections (b)(2) and (b)(3) of section 60634. The amendment would allow pathogen control treatment trains that only use MBR, UV, Chlorine and membrane technologies—which are already approved by the regulations but in different configurations than the prescribed pathogen control treatment trains in Table 60632-1—to be exempt from the validation and field verification requirements since presumably they have already been validated and pathogen control treatment trains described under 60632 are exempt from field verification under subsection (a) of section 60640. The commenter indicated this addition would allow for flexibility in using more or less of the accepted UV and chlorine disinfection devices without having to do additional testing, while keeping the requirements for multiple processes and a maximum of 6 LRCs per technology/process.

Response:

The regulation text has been revised to reflect the suggested change. New subsection (c) has been added to section 60634.

C.634-3:

Commenter 16 recommended amending subsection (b) to section 60634 of the proposed regulations to add language that states alternative pathogen control treatment systems that have successfully fulfilled the requirements of this section previously and have been approved for use by a local jurisdiction are exempt from subsections (a) and (b) of this section, provided the alternative treatment system proposed is the same design as was previously approved. The commenter indicated the amendment would clarify whether alternative pathogen control treatment trains that have been vetted and approved need to be field verified in perpetuity. The commenter noted that once

validated and verified, it seems unnecessary and burdensome to continue to repeat the same testing requirements indefinitely.

Commenter 16 also noted that, alternatively, the State Board can specify in subsection (a) of section 60640 that these previously approved systems are exempt from the requirement of field verification.

Response:

The regulation text has been revised to reflect the suggested change. New subsection (c) has been added to section 60634.

C.634-4:

Commenter 16 recommended amending subsection (b) to section 60634 of the proposed regulations to add language that would provide an exemption for alternative pathogen control treatment systems that are certified to acceptable American National Standards Institute (ANSI) standards. This addition allows for the State Board to utilize the benefits of ANSI standards and certifications to ease the cost and time burdens associated with approving treatment systems. The commenter noted the use of ANSI standards and certifications in California regulations is vast, including drinking water contact materials and chemicals, recreational water equipment, and onsite wastewater treatment systems, and California has long recognized the value of leveraging national standards and certified products and systems in streamlining approvals while being protective of public health. The commenter also noted that the proposed language would also recognize the State Board's authority to determine if ANSI standards, such as NSF/ANSI 350, which may incorporate different approaches, adequately treat onsite reuse water and are ultimately protective of public health.

Response:

The State Board cannot prospectively incorporate references that are not clearly identified within the proposed regulations by title and date of publication or issuance, unless required by an authorizing California statute. An alternative to a pathogen control treatment train that is certified by an ANSI standard, such as NSF/ANSI 350, can be approved so long as it complies with the requirements in section 60634. The new subsection (c) of section 60634 would allow a streamlined approach for alternative treatment train review, particularly the treatment trains that have been approved for operations by a local jurisdiction or the treatment trains that consist of treatment processes meeting the specifications for pathogen control treatment train processes in subsections (b) through (e) of section 60632.

No revision is necessary in the proposed regulations to address the comment.

Section 60640. Field Verification of Alternative Treatment Train Performance.

C.640-1:

Commenter 4 recommended revising the proposed regulations to include more detailed descriptions of field verification requirements because field verification is not feasible for many projects for the following reasons: 1) Six logs of pathogen reduction targets are not verifiable with lightly impacted stormwater. 2) Limitation of testing capability by private laboratories, which can only test for bacteria and not for Cryptosporidium oocysts or Giardia.

Response:

The purpose of field verification for alternative pathogen control treatment train performance is to confirm that, at full-scale installation, the alternative pathogen control treatment train is achieving the required pathogen log reduction, and that operational monitoring and control systems are functional. While pathogens of interest with associated bioassays can be proposed for field verification by the responsible entity, it is not required. If proposed, sufficient details on bioassay testing must be provided in the field verification plan. The demonstration of pathogen log reduction by the alternative pathogen control treatment train to meet the requirement of section 60640 can be done by monitoring surrogates or other operational limits as provided in the approved validation study report.

Section 60642. Continuous Process Verification Monitoring.

C.642-1:

Commenters 7 and 11 opposed the proposed critical limit for ammonia concentration of 0.5 mg/L required for chlorine disinfection processes in subsections (c)(3)(E), (d)(3)(E), (e)(3)(E), and (g)(3)(E) of section 60642 of the proposed regulations. The commenters noted the added expense for online analyzers (over \$30,000) to provide this level of sensitivity. Commenter 7 stated that it is not necessary to keep ammonia levels below 0.5 mg/L for effective residual free chlorine disinfection if adequate levels of residual free chlorine to meet CT is maintained. The commenters stated the proposed critical limit for ammonia concentration of 0.5 mg/L is strict as OTNWSs may have momentary periods when ammonia reaches this level or above and may not provide public health benefit. Commenter 11 suggested that the requirement be eliminated for stormwater, roof runoff, and graywater systems, as these source waters have lower levels of ammonia and total Kjeldahl nitrogen than blackwater.

Response:

An ammonia concentration limit is provided because excess ammonia can interfere with the free chlorine disinfection process. Excess ammonia will react with chlorine to form chloramine, which is a slower acting disinfectant compared to free chlorine. The basis for the chlorine CT values provided in the WaterVal validation protocol for Chlorine Disinfection (WaterSecure, 2017b) is the 2012 “Chlorine disinfection of human pathogenic viruses in recycled waters” study (Keegan et al., 2012). The study was carried out in secondary-treated wastewater, which had undergone primary

sedimentation, activated sludge treatment and clarification, and had low ammonia levels (below 0.5 mg/L). A Journal of Water and Health article in 2019 summarizes the study (Wati et al., 2019), noting the presence of nitrogenous compounds in wastewater, particularly ammonia, which react with chlorine quickly to form monochloramine, dichloramine, and nitrogen trichloride. Where water has a high concentration of ammonia, monochloramine would be the disinfectant choice. This limit and other continuous process verification monitoring limits are intended to minimize treatment train site-specific reviews. Momentary periods of ammonia spikes can result in a reduced free chlorine concentration, which could result in insufficient disinfection. While no revision was made to section 60642 because of this comment, the proposed regulations have been revised to add subsection (c) to section 60634 to allow a streamlined review of a treatment train that consists of treatment processes meeting the requirements of subsections (b) through (e) of section 60632, which includes a chlorine disinfection treatment process. Site-specific evaluation of ammonia concentration in source water can be proposed as part of an alternative pathogen control treatment train.

No revision is necessary in the proposed regulations to address the comment.

C.642-2:

Commenters 7 and 13 requested clarification on how a CT value of not less than 12 mg-min/L required under subsection (c)(3)(A) of section 60642 of the proposed regulations was determined. Commenter 13 commented that the free chlorine disinfection process critical limits selected by State Board staff for the regulations are based on conservative conditions for pH not to exceed 8.0 and temperature of at least 15°C, which the State Board selected based on Table 1 of “WaterVal validation protocol for Chlorine Disinfection,” and requested that the minimum CT value stated in the regulation be revised to incorporate the range of Table 1 values based on actual pH and temperature for the sought after virus inactivation.

Commenter 13 provided an example of Mission Rock Utilities in San Francisco, which has been seeing typical pH of 6.5 – 7.0 through its treatment processes and average temperature of 26.8°C (minimum of 25.7°C) due to San Francisco’s mild climate. Taking these site-specific values, the required CT is 2 mg/L-min for 2-log virus inactivation.

Response:

The pathogen control treatment train A chlorine disinfection CT of 12 mg-min/L is based on influent pH of 8.0, influent temperature of 15°C, and maximum turbidity of 2 NTU for 4-log reduction of virus. The influent into the chlorine disinfection system is from the upstream MBR process, which is expected to not exceed 0.5 NTU.

While no revision was made to section 60642 because of this comment, the proposed regulations have been revised to add subsection (c) to section 60634 to allow a streamlined review of a treatment train that consists of treatment processes meeting the requirements of subsections (b) through (e) of section 60632, which includes chlorine

disinfection treatment process. Site specific evaluation of pH and temperature expected for the source water can be proposed as part of an alternative treatment train.

C.642-3:

Commenter 11 stated that the reference to the “MBR system” in subsection (h)(1) of section 60642 of the proposed regulations is not appropriate as pathogen control treatment train F includes UV only. The commenter suggested eliminating the turbidity value restriction because pathogen control treatment train F does not include a membrane filtration process.

Response:

Subsection (h)(1) does not include any turbidity limit. No revision is necessary in the proposed regulations to address the comment.

C.642-4:

Commenter 11 commented that the “MBR process” in subsection (h)(2) is not appropriate as pathogen control treatment train F includes UV only. The commenter suggested that the UVT value restriction should be eliminated because pathogen control treatment train F does not include a membrane filtration process.

Response:

Subsection (h)(2) does not exist in the proposed regulation text. No revision is necessary in the proposed regulations to address the comment.

C.642-5:

Commenter 13 suggested the regulations be revised to allow the use of alternate baffling factors of 60% when a pipeline chlorine contactor is used, similar to what is allowed under the City and County of San Francisco Onsite Water Reuse Program, without requiring a tracer study.

Response:

State Board staff appreciate the suggestion for streamlining the requirement to ensure effective chlorine disinfection. A default baffling factor of 0.1 is based on the recommendation by WaterSecure (2017b) when a tracer study is not completed. An alternative baffling factor can be proposed as part of an alternative treatment train. While no revision was made to section 60632 because of this comment, the proposed regulations have been revised to add subsection (c) to section 60634 to allow a streamlined review of a pathogen control treatment train that consists of treatment processes meeting the requirements of subsections (b) through (e) of section 60632, which includes a chlorine disinfection treatment process.

C.642-6:

Commenter 16 suggested that the proposed regulations be revised to include the crediting framework that the State Board used as a basis for critical limits specified in

section 60642. The State Board referenced the crediting framework documents in the Initial Statement of Reasons. The commenter noted this would be helpful to provide clarity to readers and inform those proposing alternative treatment trains.

Response:

As the commenter pointed out, the State Board documented the basis for these values in the Initial Statement of Reasons, including the frameworks for pathogen log reduction crediting. Incorporation by reference of these documents is unnecessary, as the critical limits for the pathogen control treatment trains' continuous process verification monitoring are requirements for pathogen control treatment trains only. The proposed regulations provide requirements on alternatives to pathogen control treatment trains, including the requirements for the validation study protocol and report in section 60682, where the responsible entity must identify the pathogen(s) being addressed by the treatment or appropriate surrogates for the pathogen(s) that are used in the validation study. The pathogen(s) and surrogate(s) selected for the validation study must be the one(s) most resistant to the treatment mechanism. For viruses, it does not mean that a single type of virus (e.g., adenovirus or norovirus) must be used for all proposed alternative pathogen control treatment trains.

No revision is necessary in the proposed regulations to address the comment.

C.642-7:

Commenter 16 recommended that the regulations be revised to clarify if validation testing of different technologies must be done with adenovirus. Many existing crediting frameworks use bacteriophage MS2 for spike testing to evaluate pathogen log reduction capabilities. MS2 is a good surrogate for norovirus, but not adenovirus, and the log reduction achieved can be quite different from one pathogen to another. Without this specific guidance, it's possible a system could achieve a log reduction not applicable to the LRTs they are seeking to meet. Commenter 16 also noted that certifying organizations, such as NSF, would incur high costs in new series of trainings, controls, and laboratory capacity for spike testing with adenovirus.

Response:

It is not necessary for all treatment processes proposed for alternative pathogen control treatment trains to be validated for inactivation or removal of adenovirus. Table 60630-1 lists required pathogen log reduction targets for OTNWSs for enteric virus, Giardia lamblia cyst, and Cryptosporidium oocysts. Please also see response to C.642-6 pertaining to the requirements in section 60682 to describe in the validation study protocol and report identification of pathogen(s) being addressed by the treatment or appropriate surrogate(s) for the pathogen(s) that are used in the validation study.

No revision is necessary in the proposed regulations to address the comment.

Section 60670. Supplemental Source of Water for OTNWS.

C.670-1:

Commenter 11 inquired whether an OTNWS would be prohibited if it does not have a municipally supplied potable water source required under subsection (a) of section 60670 of the proposed regulations. The commenter stated that requiring a connection to a municipally supplied potable water source could create an undue financial burden for systems not located near a city system. The commenter suggested revising subsection (a) to allow more flexibility, such as allowing a “safe water source.”

Response:

Subsection (a) has been revised to require potable water supplied by a public water system be available as a supplemental source of water if onsite treated nonpotable water is distributed for indoor uses. The requirement ensures that there is a reliable supply available for necessary indoor uses for its tenants or residents, such as toilet flushing or clothes washing. “Safe water source” is not a sufficient term to describe the availability, reliability, or quality of the potable water supplied. Public water systems are not exclusively municipalities. Please refer to the definition of public water system in subsection (hh) of section 60600.

C.670-2:

Commenter 11 inquired why the recycled water used as a supplemental source under subsection (b) of section 60670 of the proposed regulations must be municipally supplied. The commenter requested subsection (b) be revised to allow for the use of private supply sources that meet disinfected tertiary recycled water standards. The commenter stated this revision would provide more flexibility for owners not served by a municipal recycled water system.

Response:

The regulation text has been revised to reflect the suggested change. Disinfected tertiary recycled water (as defined in Cal. Code Regs., tit. 22, section 60301.230) or better recycled water quality produced by a non-municipal water recycling facility can be used to as a supplemental source in addition to potable water from a public water supplier.

C.670-3:

Commenter 20 recommended revising subsections (a) and (c) of section 60670 of the proposed regulations to replace “municipally supplied potable water source” with “potable water from a public water system.” The commenter noted that “municipally-supplied potable water” is not typically used in the regulations, while “public water system” is defined in the California Health and Safety Code. The commenter also noted that not all public water systems are municipally owned or operated.

Response:

The regulation text has been revised to reflect the suggested change.

Section 60672. Automatic Diversion.

C.672-1:

Commenter 12 commented on the challenges that the requirement for an alarm-triggered automatic diversion may pose for system operators, and that the decision to divert should be made by a treatment system manager (i.e., operator in charge) based on a passing total coliform bacteria test result. Commenter 12 provided an example of a UV disinfection system that has sensitive sensors and triggers alarms several days after bulb and quartz sleeve replacement. When an alarm is triggered, it is the operator's responsibility to perform UV disinfection system maintenance (e.g., tracking light bulb hours, cleaning quartz sleeves). Commenter 12 stated that a passing total coliform bacteria test result means the OTNWS is properly disinfecting and should be allowed to run.

Response:

In lieu of daily total coliform bacteria test results to determine the effectiveness of the treatment train, the proposed regulations rely on continuous process verification monitoring for confirmation that the pathogen log reductions are being met. Daily total coliform is a reliable monitoring approach for evaluating the potential presence of bacteria or protozoa in the water; however, it does not confirm effectiveness of the disinfection process for enteric virus inactivation. Automatically triggered diversion due to unmet pathogen log reduction targets will significantly reduce the threat from pathogen exposure as the action is immediate. While diversion resulting from unmet pathogen log reduction targets must be automatically triggered, the OTNWS relies on the operator to make the determination that it is safe to continue to deliver onsite treated nonpotable water for end uses.

UV disinfection systems rely on proper maintenance (e.g., tracking light bulb hours and cleaning quartz sleeves) to ensure that disinfection can take place effectively. The proposed regulations contain requirements for commissioning to ensure that an OTNWS is appropriately installed and tested to run at its site-specific operating conditions, which will confirm if the correct set points (e.g., UVT, UV dose, flow rate) are in place, and that the inflows (e.g., flow rate, water quality) into the OTNWS are as anticipated by the design practitioners. To ensure that there is continuity of operational practice from commissioning, the proposed regulations also contain requirements for an operations plan, which includes all equipment operations and maintenance manuals and standard operating procedures for troubleshooting.

No revision is necessary in the proposed regulations to address the comment.

C.672-2:

Commenter 7 inquired whether a template would be provided for the report required by subsection (d) of section 60672 of the proposed regulations, which requires a

description of the cause for diversion, subsequent investigation, and completed corrective actions.

Response:

Local jurisdictions that elect to establish a program for onsite treated nonpotable water systems are responsible for and have the discretion to establish permitting program procedures, including the format of reports necessary to meet the requirement of this section. Once the regulations are effective, State Board staff can assist local jurisdictions by providing feedback on the format of permitting program documents, such as format for the report required in subsection (d).

No revision is necessary in the proposed regulations to address the comment.

C.672-3:

Commenter 10 suggested clearer language regarding power supply redundancy for onsite systems in subsection (c) of section 60672 of the proposed regulations. Commenter 18 recommended adding the word “primary” to subsection (c) to clarify that the diversion equipment must be able to function independently of the primary power supply used for the OTNWS.

Response:

The regulation text has been revised to reflect the suggested change.

C.672-4:

Commenter 11 requested clarification on whether local jurisdiction approval is required under subsection (d) of section 60672 of the proposed regulations before resuming operation of an OTNWS after an automatic diversion is triggered. The proposed regulation text requires submission of the report but does not specify that approval is required.

Response:

Subsection (d) has been revised to clarify that local jurisdiction approval must be obtained prior to restarting operation of the OTNWS.

Section 60674. Reliability Requirements for Disinfection Unit Processes.

C.674-1:

Commenter 13 requested clarification on the term “standby chlorine supply” listed in subsection (b)(1) of section 60674 of the proposed regulations. The commenter provided an example of an OTNWS treatment facility, which uses liquid sodium hypochlorite solution that is stored in a tank from which it is pumped into the process. The commenter requested clarification whether the OTNWS will be required to have a second standby tank with a standby metering pump, and if it is sufficient to divert the product water to waste and shut down the treatment facility if the sodium hypochlorite tank runs dry or if the feed pump fails.

Response:

The purpose of the reliability requirements for disinfection unit processes in an OTNWS treatment train is to ensure uninterrupted pathogen inactivation for the delivered product and prevent inadequately treated nonpotable water delivery to the point of use. A standby chlorine supply, as required in subsection (b)(1), means a backup chlorine storage with feed equipment and all other necessary components to allow uninterrupted supply of chlorine into the treatment train. State Board staff recognize that an automatic diversion in the event of a treatment process failure that results in inadequate treatment would serve the same purpose. Subsection (b) has been revised to add an allowance for triggering automatic diversion if a reliability feature is not provided for the chlorine disinfection process.

Section 60676. Alarms.

C.676-1:

Commenter 11 questioned the benefit of requiring alarm devices covered by subsection (b) of section 60676 of the proposed regulations to operate independently of the power supply for the OTNWS because the treatment processes will be offline when power is lost. The commenter also noted that the addition of backup power for the OTNWS would lead to unnecessary costs for the owner.

Response:

Subsection (a) requires that each OTNWS be equipped with alarm devices to provide warnings of loss of power, treatment train failure, and any other incidents for which warning is required by the local jurisdiction to minimize threats to public health resulting from an OTNWS failure. Loss of power does not relieve the responsible entity from the requirement to ensure that no inadequately treated water is delivered to the point of use.

In the event of power loss, treatment processes that rely on power supply (such as UV disinfection or chlorine feed systems) will no longer deliver the proper treatment. The SCADA system and alarms must continue to be operational to warn the operators of potentially inadequately treated water leaving the OTNWS, and the operator needs to ensure that a diversion process is automatically initiated, or if onsite treated nonpotable water is delivered for indoor use, an automatic switchover to an approved supplemental water supply is initiated. Backup power supply for alarm devices do not necessarily need to be a standby generator; Uninterrupted Power Supplies (UPS) or built-in batteries may suffice. Options for the appropriate backup power supply for alarm devices would have to be evaluated on a project-by-project basis.

No revision is necessary in the proposed regulations to address the comment.

Section 60678. Microbial Regrowth Control for Storage and Distribution.

C.678-1:

Commenters 11 and 13 questioned the need for the requirement to maintain the temperature of onsite treated nonpotable water in the storage and distribution system between 25°C (77°F) - 45°C (115°F). Commenter 11 noted that the cost of heating will add significant amounts of capital and operating costs and generation of greenhouse gases. Commenter 13 similarly noted the burden for the cost of cooling. Commenter 13 asserted that the short residence time in distribution piping and product water disinfectant residual does not justify the risk of regrowth in the distribution system. Commenter 13 requested that the lower limit of the required temperature range be raised to 30°C.

Response:

State Board staff appreciate these comments as they raise the impracticality of the requirement in subsection (a) of section 60678 of the proposed regulations for maintaining temperature ranges within storage and distribution system. State Board staff recognize the impracticality of maintaining water temperature in pipelines or storage tanks that are either exposed to the elements or outside of climate-controlled rooms. Temperature control, among many others identified in the 2020 National Academies of Sciences report, remains a recognized best practice for microbial regrowth control and can be imposed by local jurisdictions through local ordinances. The proposed regulation text has been revised to delete subsection (a) and subsection (b).

C.678-2:

Commenter 11 stated that the free chlorine (disinfectant residual) requirement does not apply to all systems and subsection (c) of section 60678 of the proposed regulations should be revised to make it clear that pathogen control treatment train F (UV only) does not need to meet this requirement.

Commenters 12 and 13 stated that the subsection (c) requirement to test for disinfectant residual at farthest end use fixtures is unnecessary, overly restrictive, and costly. Commenter 12 noted dead legs (i.e., capped end pipe sections) make it difficult for a treatment system manager (treatment system operator) to manage chemical injection; therefore, sampling should be limited to the product water leaving the treatment facility. Commenter 13 noted that municipal recycled water distribution systems are not required to maintain or test for disinfectant residual. Commenter 13 also requested clarification on the number and location of measurement points for the required weekly sampling.

Response:

The requirement for maintaining and monitoring disinfectant residual in the storage and distribution system is applicable to all OTNWS treatment trains and is independent of the requirement for meeting pathogen log reduction targets in section 60630.

As described in the ISOR, these requirements to maintain disinfectant residual are necessary to minimize microbial regrowth of opportunistic pathogens to prevent threat to public health. The 2020 National Academies of Sciences report on “Management of Legionella in Water Systems” (NAS, 2020) notes several papers suggesting that disinfectant residuals are lost once water starts to stagnate in premise plumbing, such as in dead legs or farthest end fixtures. This is consistent with the concern that Commenter 12 noted; therefore, monitoring for disinfectant residual at product water as it leaves the OTNWS treatment facility is not a sufficient microbial regrowth control. Nonpotable water produced by OTNWSs is more prone to stagnation as only selected fixtures can be served for nonpotable uses. The proposed regulations are also intended for commercial, mixed-use, and multifamily buildings, which generally are large buildings (e.g., hotels, apartment complexes, offices, high rises) with larger plumbing networks with likely more operational variability (e.g., phased construction, unoccupied suites/rooms). State Board staff recognize the variability that exists between various building-scale and district-scale OTNWS distribution systems. Monitoring for disinfected residual in the furthest fixtures can be performed using a field handheld device as a part of a weekly routine system maintenance. While the frequency (weekly sampling) is specified, the locations and points of monitoring are subject to local jurisdictions’ project-by-project review and approval, as a sampling plan, including a corrective action plan to address undetectable or very low disinfectant residual, to demonstrate compliance with the requirements of microbial regrowth control (section 60678) is required as part of the OTNWS operations plan per section 60686. Lastly, the regulations for municipal recycled water distribution systems are outside the scope of these proposed regulations.

No revision is necessary in the proposed regulations to address the comment.

Section 60680. Engineering Report.

C.680-1:

Commenter 6 noted that a definition for LRV was not included in the regulations and requested a definition be provided.

Response:

The regulation text has been revised to reflect the suggested change. Log reduction value is spelled out in subsection (c)(5)(C) of section 60680 and subsection (e)(2) of section 60682.

C.680-2:

Commenter 7 inquired whether the three years of wastewater treatment experience required in subsection (b) of section 60680 of the proposed regulations for an engineering report preparer includes experience with OTNWSs or district-scale distribution systems. The commenter also inquired whether formal certification, such as drinking water operator certification (T2 or D2) or a wastewater operator certification, is required.

Response:

The years of experience specified for the engineering report preparer is to ensure that the individual preparing the engineering report has relevant experience related to design of wastewater treatment trains or wastewater treatment processes, as many of the treatment technologies overlap with OTNWS considerations. Experience with designing distribution systems (e.g. distribution pipelines) is not considered a qualifying experience for design of wastewater treatment. A professional engineer licensed in California is the specified formal licensing for preparation of the engineering report.

No revision is necessary in the proposed regulations to address the comment.

C.680-3:

Commenter 11 stated that the requirement for use area containment measures listed in subsection (c)(10)(F) of section 60680 of the proposed regulations is unclear, which will make conformance difficult and lead to varied interpretations that discourage new OTNWS construction. The commenter inquired whether a building is expected or required to provide double containment for indoor use.

Response:

The use of onsite treated nonpotable water must be contained within its intended use area to minimize unnecessary exposure routes (e.g., from flooding, splashing, ponding, etc.). To address the commenter's question on double containment for indoor use, State Board staff interpret the comment as referring to double containment of piping for delivery of onsite nonpotable water. Double containment piping can be proposed to the local jurisdiction as one way of ensuring or minimizing unintended exposure when there are piping leaks, although there are other practices for ensuring uses of onsite nonpotable water are contained within the use area, such as using high level shut off valves on toilets, sloping of floors to drains, appropriately sizing drain lines, and regular maintenance to ensure proper working order of these fixtures.

No revision is necessary in the proposed regulations to address the comment.

C.680-4:

Commenter 20 suggested that the engineering report requirements in subsection (c) of section 60680 of the proposed regulations include a requirement for "other report elements specified by the sewer service provider to prevent significant adverse impacts to the community sewer system from operating the OTNWS."

Response:

The regulation text has been revised to reflect the suggested change.

Section 60682. Validation Study Protocol and Report.

No comments received.

Section 60684. Commissioning Plan and Report.

C.684-1:

Commenter 7 inquired whether the State Board would be providing a template for the commissioning plan and report.

Response:

State Board staff intend to develop guidance documents to support the implementation of the proposed regulations, which may include an example template for the commissioning plan and report.

No revision is necessary in the proposed regulations to address the comment.

C.684-2:

Commenter 11 inquired how the duration of the commissioning period in subsection (e) of section 60684 of the proposed regulations was determined. The commenter noted that the duration of the commissioning period seems arbitrary and is too low to effectively demonstrate system performance. The commenter also noted that a backwash cycle can be scheduled to run once an hour and be completed immediately, and even if a daily backwash cycle is scheduled, it would only provide one day of operational data. The commenter recommended this subsection be revised to require proof of system performance over an extended period of time, similar to the procedures used by the City and County of San Francisco Onsite Water Reuse Program's 90-days conditional startup mode prior to delivery of onsite treated nonpotable water.

Response:

The commenter is referring to only one out of the three criteria that must be fulfilled for determination of a commissioning period. The duration of the commissioning period is contingent upon any proposed commissioning duration meeting the qualitative requirement of subsection (e), which requires the duration of a commissioning period:

- Be sufficient for all treatment processes to reach steady operating conditions;*
- Be long enough to experience at least one continuous operation between two consecutive backwash cycles (or other actions that renew treatment function yield or efficacy); and*
- Be long enough to collect sufficient treatment system performance data to determine that the treatment train meets the reliability requirement for compliance with section 60674.*

A uniformly specified timeframe – in days or hours of operation – would not be appropriate, since an OTNWS treatment train could consist of various combinations of treatment processes and flows. The purpose of the commissioning period is to confirm that the treatment train can operate as designed ahead of full operation. The duration of a commissioning period, along with other elements required in 60684 for the

commissioning plan, is subject to approval by the local jurisdiction prior to commissioning. The requirement for a commissioning period is separate from and is not intended to supersede any local jurisdiction program requirement, such as the City and County of San Francisco's 90-day conditional startup mode prior to delivery of onsite treated nonpotable water.

No revision is necessary in the proposed regulations to address the comment.

C.684-3:

Commenter 13 is a lead design engineer and advisor for the Mission Rock Utilities Blackwater Treatment Facility located in San Francisco, CA. The Mission Rock Utilities facility was permitted by the City and County of San Francisco Onsite Water Reuse Program and has gone through the commissioning process as required by the local jurisdiction program. Commenter 13 inquired whether a commissioning plan, test, and report will be required for existing facilities permitted by a local jurisdiction program that have undergone the commissioning process.

Response:

Existing OTNWSs in operation before the effective date of the regulations will be evaluated once the regulations are final and effective. State Board staff will assist local jurisdictions in assessing existing OTNWSs (and as needed, on a case-by-case basis) to confirm whether the OTNWSs are either complying or working toward compliance with the new regulations. Generally, if the local jurisdiction program commissioning procedures are more restrictive or rigorous than the requirements of the proposed regulations, existing OTNWS that are operational and well-functioning (i.e. have no problems in meeting their LRTs) may not need to repeat the commissioning process. That said, the evaluation will highly rely on the review of the existing local jurisdiction program requirements, review of the existing OTNWS, and local jurisdiction's discretion to impose re-commissioning.

No revision is necessary in the proposed regulations to address the comment.

C.684-4:

Commenters 18 and 20 requested that subsection (f) of section 60684 of the proposed regulations be revised to include "The commissioning report must also be submitted to the appropriate public water system, wastewater treatment agency, and when applicable the recycled water agency within 30 days of completion of the commissioning period."

Response:

The regulation text has been revised to reflect the suggested change.

Section 60686. Operations Plan.

C.686-1:

Commenter 6 inquired whether OTNWS treatment facility staff will have access to an operations plan and if this was removed.

Response:

Subsection (c) has been revised to require that the operations plan must be kept onsite and be available to all personnel responsible for operation of the OTNWS at all times. The operations plan must also be available to local jurisdiction staff for inspection upon request.

C.686-2:

Commenter 11 stated that the subsection (a) requirement of section 60686 of the proposed regulations for operations plan approval prior to the issuance of a permit is unreasonable because permit issuance can occur ahead of construction activities (e.g., by the building department), depending on the permitting entity. The proposed regulations require that the operations plan include information/activities (e.g., hiring and contracting of operators) and documents (such as SCADA system programming user guide and as-builts) that would not be available ahead of completion of construction.

Response:

Subsection (a) has been revised to state that the operations plan must be approved by the local jurisdiction prior to the delivery of onsite treated nonpotable water.

C.686-3:

Commenter 11 inquired whether subsection (b) of section 60686 of the proposed regulations requires all staffing changes be approved by the local jurisdiction, since subsection (b) requires that operation plan updates, which includes staffing information, must be approved by the local jurisdiction prior to the changes being implemented. The commenter provided an example where a system would not be able to operate if an operator suddenly quits and the owner must wait for local jurisdiction approval to hire the new operator. The commenter also suggested the regulations should be revised to require a certain grade operator, put the responsibility on the owner to maintain a system with adequate staff, and not require local jurisdiction approval for staffing replacement.

Response:

Subsection (a)(9) and section 60690 have been revised to clarify that the regulations require an OTNWS have qualified and adequate staffing. The requirement is not intended to make the local jurisdiction responsible for approving changes in staffing, but to ensure that the local jurisdiction has sufficient information to determine whether the responsible entity is providing qualified and adequate staffing for the operation and maintenance of the OTNWS.

Section 60688. Monitoring Report.

C.688-1:

Commenter 7 requested clarification on subsection (f) of section 60688 of the proposed regulations, which requires the monitoring report to include results of sampling performed in accordance with section 60678. The commenter noted that the regulations require continuous monitoring of the OTNWS treatment processes; therefore, the commenter is unclear of what water quality parameter must be sampled and its purpose.

Response:

Subsection (f) requires sampling performed in accordance with section 60678, which addresses requirements for microbial regrowth control for storage and distribution facilities. While disinfectant concentration entering the storage and distribution facility is a continuously monitored parameter (along with the other continuously monitored parameters for the treatment train), section 60678 requires disinfectant residual to be maintained at the farthest end-use fixture(s), which must be measured weekly using a calibrated field meter.

No revision is necessary in the proposed regulations to address these comments.

C.688-2:

Commenter 11 suggested that Table 60688-1 be amended to specify monitoring parameters associated with each pathogen control treatment train.

Response:

Table 60688-1 contains monitoring parameters for each treatment process utilized for the pathogen control treatment train. No revision is necessary in the proposed regulations to address this comment.

C.688-3:

Commenter 11 suggested that ammonia monitoring be removed from Table 60688-1 for OTNWSs treating stormwater- and rainwater-only sources.

Response:

Influent ammonia monitoring is a necessary parameter for a pathogen control treatment train with a free chlorine disinfection process. A minimum ammonia concentration is provided as a limit because it is an interference for the free chlorine disinfection process. Excess ammonia will react with chlorine to form chloramine, which is a slower acting disinfectant compared to free chlorine. A site-specific monitoring consideration for an OTNWS, where its source water has been adequately characterized to demonstrate consistently very low levels of ammonia or other means of ammonia control can be proposed as part of alternative treatment train for local jurisdiction approval as described in section 60634.

No revision is necessary in the proposed regulations to address this comment.

Section 60690. Personnel.

C.690-1:

Commenter 10 recommended that operator training and certification requirements be made more stringent. Commenter 10 emphasized the complexities of OTNWSs, especially those involving blackwater or mixed sources, which are comparable to wastewater treatment systems operated by public agencies. Commenter 10 stated that stringent certification standards will help ensure public safety and regulatory compliance.

Response:

Please refer to response to GC-27. No revision is necessary in the proposed regulations to address the comment.

C.690-2:

Commenter 13 noted that the proposed regulations contain qualitative requirements for an OTNWS treatment facility operator. The commenter inquired whether an operator certification requirement will be imposed for treatment system managers, as the City and County of San Francisco Non-Potable Water Ordinance requires treatment managers be a State of California certified Grade II wastewater treatment operator (or equivalent).

Response:

City and County of San Francisco Non-Potable Water Ordinance require treatment managers be a State of California certified Grade II wastewater treatment operator (or equivalent) for OTNWS treating blackwater (onsite wastewater) and graywater. The proposed regulations do not specify a State of California certified wastewater treatment operator for OTNWS treating onsite wastewater and graywater to allow discretion for the local jurisdiction in the necessary and appropriate workforce for OTNWS operators that are realistic for their location, as the availability of State of California certified wastewater treatment operators are not equally distributed statewide. The scope of the proposed regulations addresses various non-potable water sources, including onsite wastewater. The required knowledge set possessed by personnel operating the OTNWS treatment facility contained within section 60690 is intended to cover the knowledge set necessary for the proper operation of an OTNWS, regardless of the source water treated.

Subsection (b)(7) provides the local jurisdiction with the discretion to determine other necessary requirements to ensure the OTNWS operates as designed and in a manner that is protective of public health. The local jurisdiction can require State of California wastewater treatment operator certification as part of the local jurisdiction program permitting requirement. The proposed regulation text would not impact the City and

County of San Francisco Non-Potable Water Ordinance's existing treatment manager certification requirement.

No revision is necessary in the proposed regulations to address the comment.

Section 60692. Signage.

C.692-1:

Commenter 3 questioned the benefit of the signage requirements for tank-type toilets listed in subsections (c) and (e) of section 60692 of the proposed regulations as they pertain to apartment building dwelling units and commercial buildings. Apartments are intended for long-term habitation, and the occupants are aware of onsite treated nonpotable water use for flushing. The commenter questioned what benefits the signage requirements would provide to someone trapped in the dwelling unit by natural disaster.

Response:

The requirement for tank-type toilet signage installed within the tank to warn that the water within the tank is not a suitable emergency drinking water supply is consistent with the current (2022) California Plumbing Code section 1505.12.2 requirements for tank-type toilet signage supplied with recycled water. Department of Water Resources staff confirmed that commercial and apartment buildings are not exempted from the existing California Plumbing Code requirement. The proposed regulations are intended for multifamily residential buildings, which would include hotels, motels, and other buildings for short term occupancies, and are not limited to long term occupancy only. The purpose of the signage requirements is to inform the building users of the inherent risk of the nonpotable water supply that is in use. In the event of a natural disaster, the signage continues to serve its purpose of providing information, regardless of the circumstances of the individuals trapped in the dwelling unit.

No revision is necessary in the proposed regulations to address the comment.

C.692-2:

Commenter 5 recommended eliminating references to the specific building standard year and section numbers within section 60692 of the proposed regulations and replacing them with the "most recent edition[s] of the California Plumbing Code/California Building Code." The commenter noted these changes would eliminate the need to frequently amend this regulation section in the future every time the corresponding section numbers are updated in the California Plumbing Code and California Building Code.

Response:

Consistent with the California Administrative Procedure Act requirements for incorporation by reference, the State Board regulations cannot prospectively reference future editions of California Building Standards Code (California Plumbing Code/

California Building Code). The requirement for character height in signs is contained within California Building Standards Code sections for accessibility requirements for housing and publicly accessible buildings. Any OTNWS responsible entity must comply with these signage requirements in the California Building Standards Code regardless of inclusion of the requirements in the State Board regulations. The regulation text has been revised to remove the California Building Standards Code citations.

C.692-3:

Commenters 10 and 18 recommended the signage requirements be aligned with Water Reuse California Signage Guidelines for consistency in public messaging at properties where municipally recycled water is in use.

Response:

The regulation text has been revised to reflect the suggested change.

C.692-4:

Commenters 11 and 18 noted that subsections (c) and (e) of section 60692 of the proposed regulations are duplicates and suggested subsection (e) be deleted.

Response:

The regulation text has been revised to reflect the suggested change.

C.692-5:

Commenter 18 suggested replacing the signage wording in subsection (a) of section 60692 of the proposed regulations with signage wording from the subsection (3) of section 601.3.3 of the 2022 California Plumbing Code “CAUTION: ONSITE TREATED NONPOTABLE WATER, DO NOT DRINK”. Commenter 18 also suggested that the signage regulations align with the current requirements in the California Plumbing Code, specifically allowance for signs to contain highly visible letters on a contrasting background instead requiring purple-colored signs.

Response:

The regulation text has been revised to reflect the suggested change.

C.692-6:

Commenter 18 requested additional clarity on signage on and near toilets.

Response:

The commenter did not provide additional context for this comment. Subsection (b) of section 60692 of the proposed regulations requires that signs be installed in each publicly accessible or common area restroom of commercial, mixed-use and multifamily buildings using onsite treated nonpotable water for water closets, urinals, or both.

No revision is necessary in the proposed regulations to address the comment.

C.692-7:

Commenter 19 provided regulatory text suggestion to allow flexibility in public signage wording consistent with recycled water signage requirements in California Code of Regulations, title 22, section 60310, subdivision (g).

Response:

The regulation text has been revised to reflect the suggested change. The suggested regulatory text addition is provided in subsection (f).

Section 60694. Notifications.

C.694-1:

Commenter 18 recommended replacing “no later than 24 hours” with “within 24 hours” in subsection (b) of section 60694 of the proposed regulations to convey that the notification to building tenants and/or residents of inadequately treated water delivered to the use area must happen as soon as possible. Commenter 10 suggested that the notification timeline to be shortened to 12 hours.

Response:

The regulation text has been revised to clarify that notification must be made immediately, while keeping the time limit for completion of notification to 24 hours. A shortened timeline is not necessary as the regulation text requires notification to be made immediately.

Section 60696. Decommissioning.

C.696-1:

Commenters 18 and 20 suggested adding the municipal potable water supplier, wastewater treatment agency, and recycled water purveyor as entities notified in subsection (a) of section 60696 of the proposed regulations prior to the start of decommissioning activities.

Response:

The regulation text has been revised to reflect the suggested change. A requirement to notify these additional entities is also added to subsection (b).

Section 60700. Cross-connection Hazard Assessment.

C.700-1:

Commenter 7 requested clarification to subsection (a) of section 60700 of the proposed regulations on whether hazard assessment is a part of the cross-connection test required in section 60704.

Response:

A cross-connection hazard assessment is an independent and separate requirement from the cross-connection test required in section 60704. Both the cross-connection

hazard assessment and the cross-connection test are required prior to the initial delivery of onsite treated nonpotable water and at least once every four years thereafter. The local jurisdiction can choose to require the responsible entity to complete both requirements within the same timeframe (e.g., having a hazard assessment conducted on the same day of the cross-connection test).

No revision is necessary in the proposed regulations to address the comment.

C.700-2:

Commenter 7 suggested that only an air gap be allowed for connection(s) to supplemental water supply(ies) as part of the site-specific cross-connection hazard assessment consideration and identification in subsection (b)(4) of section 60700 of the proposed regulations.

Response:

The requirement for a backflow prevention assembly to protect connection with a supplemental water supply is specified in section 60670. For an initial cross-connection test, a temporary connection to the potable water supply may be protected using a reduced pressure principle backflow protection assembly or an air gap, if approved by the public water system (see section 60704 of the proposed regulation text). As such, specifying air gap in this section may not be appropriate for all cross-connection hazard assessments.

No revision is necessary in the proposed regulations to address the comment.

Section 60702. Visual Inspection.

No comments received.

Section 60704. Cross-connection Test.

C.704-1:

Commenter 6 suggested adding and clarifying a reference to the State Board's Cross-Connection Control Policy Handbook in the introductory sentence, but provided suggested regulation text for subsection (c)(3) of section 60704 of the proposed regulations to clarify that no flow from a potable water outlet during a cross-connection test may indicate that it is connected to the onsite treated nonpotable water distribution system.

Response:

No change to the regulation text based on the introductory sentence. The State Board interprets the initial portion of the comment referencing the State Board's Cross-Connection Control Policy Handbook was made in error, as the sentence does not relate with the subsequent paragraph containing the proposed regulation text edit. However, the State Board agrees with the commenter's suggested regulation text edits.

The regulation text has been revised to reflect the suggested change.

C.704-2:

Commenter 6 suggested adding clarification in the cross-connection test procedure in subsection (c)(4) of section 60704 of the proposed regulations to indicate that flows from the onsite treated nonpotable water distribution system outlet indicates a cross-connection with the onsite potable water system.

Response:

The regulation text has been revised to reflect the suggested change.

C.704-3:

Commenter 6 suggested adding a requirement in the cross-connection test procedure in subsection (c)(6) of section 60704 of the proposed regulations that the potable water supply must be protected by a reduced pressure principle backflow prevention device for the temporary connection consistent with the cross-connection testing procedures in the California Plumbing Code, chapter 15.

Response:

The regulation text has been revised to reflect the suggested change.

C.704-4:

Commenter 7 stated that it is not practical to perform a cross-connection retest every four years for all types of systems as required in subsection (a) of section 60704 of the proposed regulations, particularly for high rise residential buildings. Commenter 7 stated that the City and County of San Francisco currently requires retest every 4 years for blackwater systems only or in the event of a major plumbing alteration, where a plumbing permit is pulled, interior finishes are removed, and the in-wall plumbing systems are exposed.

Response:

The requirement for cross-connection retest at least once every 4 years is consistent with the existing California Code of Regulations, title 22, section 60316 requirements for dual plumbed recycled water system, in which separate piping systems are used to deliver recycled water and potable water within a facility.

Moreover, the proposed regulations already account for the burden on local jurisdictions. The log reduction targets for indoor uses for all evaluated source waters are derived based on exposure assumptions that include one full day per year of accidental cross-connection (2 liters delivered to 10% of the population). Based on this risk assessment assumption, there is basis for requiring cross-connection retest to once a year; however, DDW staff recognizes the local jurisdiction's burden of conducting cross-connection tests. As a reasonable alternative, the proposed regulations require an

annual visual inspection to verify that there is no evidence that a cross-connection has occurred.

State Board staff recognize that administering cross-connection tests in high-rise residential buildings presents particular challenges. Subsection (d) allows for the responsible entity to propose an alternative cross-connection test procedure in lieu of the required steps provided in subsection (c), which could account for the building and occupancy constraints while still meeting the requirements of the proposed regulations.

No revision is necessary in the proposed regulations to address the comment.

Section 60706. Cross-connection Control General Requirements.

C.706-1:

Commenter 6 suggested referencing the State Board's Cross-Connection Control Policy Handbook to clarify the qualifications of the individuals conducting cross-connection assessments, inspections, and tests required in subsection (a) of section 60706 of the proposed regulations.

Response:

Subsection (a) requires all cross-connection hazard assessments, inspections, and tests be conducted by a certified cross-connection control specialist. A "certified cross-connection control specialist" is defined in subsection (h) of section 60600 to mean a cross-connection control specialist certified in accordance with the State Board's Cross-Connection Control Policy Handbook. Referencing the State Board's Cross-Connection Control Policy Handbook within this subsection is redundant.

State Board staff made the requested revision to add "s" after "State Board" within the definition in subsection (h) of section 60600; however, no other revision is necessary in the proposed regulations to address the comment.

C.706-2:

Commenter 6 recommended adding subsection (c) of section 60706 of the proposed regulations for consistency with the subsection (2) of section 1505.13.2 of the [2022] California Plumbing Code. The recommended language would add the requirement to conduct cross-connection testing under section 60704 whenever a material reason exists to believe the potable water system separation from the onsite treated nonpotable water system has been compromised.

Response:

The regulation text has been revised to reflect the suggested change.

C.706-3:

Commenter 6 recommended the addition of subsection (d) of section 60706 of the proposed regulations to address cross-connection control requirements under California Plumbing Code chapter 15 when recycled water is used onsite.

Response:

The proposed regulations are intended to address cross-connection control requirements for OTNWSs. Cross-connection control requirements for recycled water systems are contained within the California Plumbing Code chapter 15 and are required, even if not cited in the proposed regulations. The inclusion of the suggested requirement is redundant, as the requirement already exists within other state regulations.

No revision is necessary in the proposed regulations to address the comment.

C.706-4:

Commenter 6 suggested adding a requirement in subsection (c)(8) of section 60706 of the proposed regulations to require a backflow prevention device for the temporary connection to protect the potable water supply. Commenter 6 also suggested adding clarification that no flow from an onsite treated nonpotable water outlet may indicate that it is connected to the onsite potable water system.

Response:

State Board staff note this comment may have been made in error as subsection (c)(8) does not exist in section 60706. State Board staff also interpret the first part of the comment, which suggests adding a requirement for a backflow prevention device for the temporary connection to protect the potable water supply, may have been made in error as it is a duplicate of comment made by Commenter 6 on subsection (c)(6) of section 60704. No revision is necessary in the proposed regulations to address the first part of the comment.

The State Board interprets the second part of the comment as being intended for subsection (c)(8) of section 60704. The regulation text in subsection (c)(8) of section 60704 has been revised to add the clarification that no flow from an onsite treated nonpotable water outlet may indicate that it is connected to the onsite potable water system. The regulation text has been revised to reflect the suggested change in the second part of the comment.

Section 60708. Backflow Prevention Assembly.

C.708-1:

Commenter 6 suggested adding and clarifying a reference to the State Board's Cross-Connection Control Policy Handbook in subsection (b) of section 60708 of the proposed regulations.

Response:

Subsection (b) requires that a backflow prevention assembly must be tested by a certified backflow prevention assembly tester. A “certified backflow prevention assembly tester” is defined in subsection (g) of section 60600 to mean a person who is certified as a backflow prevention assembly tester in accordance with the State Board’s Cross-Connection Control Policy Handbook. Referencing the State Board’s Cross-Connection Control Policy Handbook within this subsection is redundant.

State Board staff made the requested revision to add “s” after “State Board” within the definition in subsection (g) of section 60600; however, no other revision is necessary in the proposed regulations to address the comment.

Section 60710. Discovery of Cross-connection.

C.710-1:

Commenter 7 stated that the responsible entity is not authorized to shut off the potable water service at the meter in subsection (a)(3) of section 60710 of the proposed regulations and recommended changing to house valve or shutoff valves at the containment backflow prevention assembly.

Response:

The purpose of subsection (a)(3) is to stop any backflow of compromised onsite potable water into the public water system’s potable water distribution system upon discovery of cross-connection by shutting off the potable water service. The proposed language is identical with the California Plumbing Code chapter 15 requirement. State Board staff recognize that, as-is, the language is unclear; however, the proposed terms (e.g., “house valve.”) is the commenter’s local jurisdiction specific designation.

State Board staff revised the proposed regulation text by clarifying that the shut-off location is at the user service connection as defined in the State Board’s Cross-Connection Control Policy Handbook.

C.710-2:

Commenter 18 recommended changing the notification requirements in subsection (a)(1) of section 60710 of the proposed regulations to no later than 12 hours to be consistent with the requirement to notify the local jurisdiction in subsection (b). Commenter 18 also recommended that the notification in subsection (b) include the potable water supplier.

Response:

The requirement for notification upon discovery of cross-connection is to be completed immediately, as specified in subsection (a). The maximum timeframe is provided to establish a reasonable limit on performing such notifications. The proposed regulation text has been revised to clarify that all notifications to the local jurisdiction, public water

system, and building tenants and/or residents must be completed immediately and no later than 24 hours upon discovery of cross-connection.

The 24-hour limit is consistent with the requirement for backflow prevention assembly testers to notify the public water system if a backflow incident or an unprotected cross-connection is observed at the backflow prevention assembly or prior to the user premises during field testing. Local jurisdictions and public water systems have the discretion to shorten this time allowance to accommodate their respective cross-connection control program implementation needs.

No revision is necessary in the proposed regulations to address the comment.

REVISIONS FOLLOWING THE 45-DAY COMMENT PERIOD

As a result of comments received during the 45-day comment period, the State Board revised the proposed regulations for the reasons described in the preceding responses to comments. Additionally, following the 45-day comment period, the State Board noticed several typos in the regulation text. Therefore, the correction was included in the proposed regulations provided during the 15-day comment period. Revisions were made to the following sections presented in the table below.

Table 3: Summary of Revisions Following the 45-day Comment Period

Section	Purpose of Change
60600 (g)	Non-substantive revision to the title of State Board’s Cross-Connection Control Policy Handbook.
60600 (h)	Non-substantive revision to the title of State Board’s Cross-Connection Control Policy Handbook.
60600 (j)	To clarify the definition of “commercial building.”
60600 (n)	Non-substantive revision to correct a typo.
60600 (r)	To clarify the definition of “duly authorized agent.”
60600 (t)	To clarify the definition of “graywater.”
60600 (u)	To clarify the definition of “local jurisdiction.”
60600 (x)	To clarify the definition of “MBR.”
60600 (z)	To clarify the definition of “multifamily residential building.”
60600 (aa)	To revise the definition of “nonpotable water.”
60600 (ff)	To clarify the definition of “onsite treated nonpotable water system.”

Section	Purpose of Change
60600 (hh)	The definition of “potable water” is deleted. The definition of “public water system” is added.
60604 (b)	Non-substantive revision to correct grammatical errors.
60606 (a)(1)(B)	Non-substantive revision to correct grammatical errors.
60606 (a)(3)	To delete the requirement for summary of continuous process verification monitoring parameters from the list of required information in the local jurisdiction annual report.
60606 (b)	New subsection is added to allow for extension of annual report submittal.
60606	Non-substantive revision to add missing word (“Reference”) in Note section.
60610 (a)	To remove list of specific untreated alternate water sources and instead refer to the definition at 60600 (rr)
60620 (b)(1)	To allow washing machines with internal heating element.
60622 (a)	To clarify that the requirements apply to surface irrigation.
60624 (d)	To clarify that the use area requirement applies to outdoor use, including vehicle washing, surface irrigation, or dust suppression.
60632 (b)	To update a document incorporated by reference to the current NSF standard.
60632 (d)	Non-substantive revision to correct grammatical errors.
60634 (b)(2)	Non-substantive revision to correct grammatical errors.
60634 (c)	New subsection to allow a streamlined process for certain alternative treatment trains.
60670 (a)	Non-substantive revision to replace “municipally supplied potable water source” with “potable water from a public water system.”.
60670 (b)	To clarify the requirement for using recycled water as a supplemental source.
60670 (c)	Non-substantive revision to replace “municipal potable water supplier” to “public water system.”
60672 (c)	To clarify that diversion equipment must be able to function independently of the OTNWS primary power supply.
60672 (d)	To add requirement that local jurisdiction approval must be obtained prior to restarting the OTNWS operation after a diversion event.

Section	Purpose of Change
60674 (a)	To clarify that the minimum UV dose is a requirement.
60674 (b)	To allow SCADA system-initiated automatic diversion instead of the specified features of chlorine supply reliability.
60678	To delete temperature control requirements in storage and distribution system (previously subsections (a) and (b)).
60678 (b)	Non-substantive revision to renumber reference from subsection (c) to renumbered subsection (a)
60680 (b)	Non-substantive revision to correct grammatical errors.
60680 (c)(3)	Non-substantive revision to correct grammatical errors.
60680 (c)(5)(C)	Non-substantive revision to delete “LRV” and replace with spelled out “log reduction value.”
60680 (c)(10)	Non-substantive revision to correct grammatical errors.
60680 (c)(10)(E)	Non-substantive revision to delete repetitive phrasing “a description of.”
60680 (c)(14)	Non-substantive revision to maintain consistency with phrasing of requirement within the section.
60680 (c)(16)	New subsection to require other report elements specified by the sewer service provider.
60682 (a)	Non-substantive revision to correct grammatical errors.
60682 (d)	Non-substantive revision to correct grammatical errors.
60682 (e)(2)	Non-substantive revision to delete “LRV” and replace with spelled out “log reduction value.”
60682 (f)(4)	Non-substantive revision to correct grammatical errors.
60684 (b)	Non-substantive revision to correct grammatical errors.
60684 (d)(4)	Non-substantive revision to correct grammatical errors.
60684 (d)(8)	Non-substantive revision to correct grammatical errors.
60684 (f)	To add a requirement that the commissioning report must be submitted to the appropriate public water system, sewer service provider, and recycled water agency.
60686 (a)	To replace the requirement that OTNWSs must have an approved operations plan prior to the delivery of onsite treated nonpotable water instead of prior to permit issuance.

Section	Purpose of Change
60686 (a)(9)	To clarify that information for backup personnel shall also be provided, and to make non-substantive revisions to correct formatting of regulation section reference and to correct grammatical errors.
60686 (a)(10)(B)	Non-substantive revision to correct grammatical errors.
60686 (a)(11)	Non-substantive revision to correct grammatical errors.
60686 (b)	To clarify that the operations plan revisions must be approved by the local jurisdiction if the revisions affect compliance with the regulations.
60686 (c)	To add a requirement that the operations plan must be made available to local jurisdiction staff for inspection upon request when requested onsite.
60688 (c)	Non-substantive revision to correct formatting of regulation section reference.
60688 (d)	Non-substantive revision to correct grammatical errors.
60688 (f)	To change wording to better align with requirements in section 60678, which require monitoring of various parameters and not just collection of samples.
60688 (g)	Non-substantive revision to correct grammatical errors.
60690 (b)	To add a requirement that the responsible entity must maintain adequate staffing for OTNWS operation and submit staffing information.
60690 (b)(7)	Non-substantive revision to correct grammatical errors.
60690 (c)	Non-substantive revision to correct grammatical errors.
60692 (a)	To clarify signage wording, allowance for contrasting color, and symbol.
60692 (b)	To clarify signage wording and allowance for contrasting color.
60692 (c)	To make a non-substantive revision to correct grammatical errors, and to clarify signage wording.
60692 (d)	To clarify signage wording and allowance for contrasting color.
60692 (e)	Deleting duplicate text in this subsection. Renumbered subsection (e) is revised to clarify signage wording and allowance for contrasting color.

Section	Purpose of Change
60692 (f)	To allow local jurisdiction to accept alternative language for signage.
60694 (a)	Non-substantive revision to delete “duly authorized agents.” By definition, “duly authorized agents” have the same authority as “responsible entity.”
60694 (b)	Non-substantive revision to replace “within” with “no later than.”
60696 (a)	To add requirement to include public water system, sewer service provider, and recycled water agency in the notification.
60696 (b)	To add requirement to include public water system, sewer service provider, and recycled water agency in the notification after completion of decommissioning activities.
60700 (a)	Non-substantive revision to correct grammatical errors.
60702 (b)(2)	Non-substantive revision to correct grammatical errors.
60702 (b)(5)	Non-substantive revision to correct grammatical errors.
60704 (b)	To clarify that the treatment facility’s cross-connection control test procedure must be site-specific.
60704 (c)(3)	To clarify a cross-connection testing step.
60704 (c)(4)	To clarify a cross-connection testing step.
60704 (c)(6)	To clarify a cross-connection testing step.
60704 (c)(8)	To clarify a cross-connection testing step.
60704 (c)(10)	Non-substantive revision to replace “which would” with “that.”
60706 (b)	Non-substantive revision to replace “potable water supplier” to “public water system.”
60706 (c)	A new subsection for requiring a cross-connection test for potentially compromised potable and nonpotable system separation.
60708 (c)	Non-substantive revision to correct grammatical errors.
60710 (a)	Non-substantive revision to correct grammatical errors.
60710 (a)(1)	Non-substantive revision to replace “potable water supplier” to “public water system.”
60710 (a)(3)	To clarify location of potable water service connection shut down.

Section	Purpose of Change
60710 (b)	To delete duplicate requirement in 60710(a)(1) and to clarify that the notification must be completed within 24 hours. Renumbered subsection (b) is revised to add local jurisdiction approval requirement.

On August 1, 2025, the revisions to the revised regulations were made available to the public for an additional “15-day comment period,” with public comments accepted until noon on August 19, 2025.

SUMMARY AND RESPONSE TO COMMENTS RECEIVED DURING THE 15-DAY COMMENT PERIOD

(Gov. Code, §11346.9, subd. (a)(3))

The table below presents a record of those having provided written comments on the proposed revisions to the proposed regulations during the 15-day comment period. Unless otherwise noted, the number associated with a specific commenter(s) in the comment summaries and responses sections that follow correspond to the numbers assigned to the commenter(s) in the tables below.

Table 4: Commenters Providing Written Comments during 15-day Comment Period

No.	Name	Affiliation
1	Division of Codes and Standard Representative	California Department of Housing and Community Development
2	Richard Ross	Epic Cleantec
3	James Geselbracht	Richard Ross
4	Taylor Nokhoudian	San Francisco Public Utilities Commission
5	Brian Soderholm	Water Control Corporation
6	Rosario Cortés	WateReuse California
7	Ben Arnold ^(a)	Aquacell, Inc.

(a) Comment letter submitted past the comment letter deadline.

General Comments and Responses

This section addresses received comments that were not directed at a specific section of the proposed regulations. Comments directed at a specific section of the proposed regulations are addressed in the subsequent sections, organized by section number of the proposed regulations.

GC15-1:

Commenter 6 resubmitted their comment regarding treatment standards consistency between those required within the proposed regulations and treatment standards for disinfected tertiary recycled water as defined in California Code of Regulations, title 22, section 60301.230, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in GC-26 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

GC15-2:

Commenter 6 resubmitted their comment requesting clarification on the operator certification requirement in the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in GC-27 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

GC15-3:

Commenter 6 expressed their appreciation with ongoing support of recycled municipal water and potable reuse as a critical water supply for California, especially as identified in the Governor’s Water Supply Strategy. Additionally, the commenter stated that it is committed to effective standards that promote onsite reuse where appropriate and in coordination with municipal wastewater and recycled water operations. The commenter’s national organization partners with and financially supports the National Blue Ribbon Commission for Onsite Water Systems, which is advancing the best management practices to support the use of onsite nonpotable water systems at the local level and recognizes the importance of community choice and consultation with municipal water and sewer providers as onsite reuse is implemented and expands.

Response:

State Board staff appreciate the comments in support of the proposed regulations. The proposed regulations, consistent with its authorizing statutes, are intended to be statewide health-protective requirements for collection, treatment, distribution, and use

of onsite treated nonpotable water and include requirements for various stages of review, approval, and operation of OTNWS projects for consultation with municipal water and sewer providers.

No revision is necessary in the proposed regulations to address the comment.

GC15-4:

Commenter 6 shared a resource published by the National Blue Ribbon Commission for Onsite Water Systems in September 2023, a guidance document on OTNWS treatment trains, which provides examples of treatment trains for onsite wastewater and graywater that could meet the draft regulations: https://watereuse.org/wp-content/uploads/2023/11/WWE_NBRCONWS_2023-09-13.pdf

Response:

State Board staff acknowledge and appreciate the resource. No revision is necessary in the proposed regulations to address the comment.

Section 60600. Definitions.

C15.600-1:

Commenter 1 recommended revising subsection (ee) of section 60600 of the proposed regulations to clarify “specified uses” are the uses specified in Article 3 of the proposed regulation chapter to eliminate ambiguity.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. While State Board staff appreciate the suggestion to eliminate ambiguity, the proposed regulations are contained within a chapter designated for onsite treated nonpotable water; therefore, revising the existing subsection (ee) would not change the meaning of the definition.

No revision is necessary in the proposed regulations to address the comment.

C15.600-2:

Commenter 2 resubmitted their comment on subsection (l) of section 60600 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.600-2 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

C15.600-3:

Commenter 2 commented on the definition of “local jurisdiction” in subsection (u) of section 60600 of the proposed regulations and suggested that the State Board include additional language to provide a permit pathway if the local jurisdiction does not elect to establish a program.

Response:

This comment was provided by the commenter as a general comment during the 45-day comment period. State Board staff provided a response to this comment in GC-10 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

Section 60608. OTNWS In Operation Before the Effective Date of the Regulations.

C15.608-1:

Commenter 5 indicated it will likely be impossible for every operational OTNWS to be upgraded to comply with the proposed regulations, and that most existing systems (75%+) would likely need to be upgraded, removed, and/or replaced, and the bulk would likely end up being removed. The commenter also noted that the equipment required to meet the proposed regulations would require a much larger footprint than what many existing systems have, and which may not be able to expand their footprint. The commenter indicated the proposed regulations would cause an immediate and significant reduction in the number of systems currently operating, and will be a significant financial loss to affected facilities.

Response:

These comments are beyond the scope of the changes proposed during the 15-day comment period. Subdivision (f) of section 13558 of the Water Code requires that any existing OTNWS in operation prior to the effective date of the proposed regulations come into compliance with the regulations within two years, which can be extended an additional three years by the local jurisdiction, for a total of five years. The State Board’s proposed regulations cannot supersede the statutory requirements. Additionally, the proposed regulations allow OTNWS owners to propose alternative pathogen control treatment trains for approval by the local jurisdiction. Existing systems can be evaluated for existing treatment trains in place and assessed for needed improvements.

No revision is necessary in the proposed regulations to address the comments.

Section 60610. Source Specifications.

C15.610-1:

Commenter 4 suggested the definition of “graywater” exclude condensate, and the definition of “roof runoff” be updated to include condensate. The San Francisco Onsite

Reuse Program has one existing onsite water reuse system that is capturing roof runoff and condensate and treating for toilet flushing and irrigation. The commenter stated that extensive retrofits will be required to modify the existing system to comply with graywater treatment train requirements.

Response:

Please see response to C.610-1 regarding the basis for categorizing condensate as graywater. Definition of “roof runoff” within subsection (kk) of section 60600 is narrowly defined as “precipitation from rain or snowmelt events that is collected directly from a roof surface not subject to public access.” The extent of “roof runoff” definition coverage does not extend to “condensate,” which in a building setting, generally means liquid formed by condensation of a gas or vapor from air-conditioning, boiler, and steam systems. In the absence of a comprehensive risk assessment of the source water, DDW staff are unable to further assess condensate source water characteristics and make the determination for condensate pathogen LRTs within the current rulemaking effort. DDW staff intend to revisit condensate source water characterization and risk assessment at a future rulemaking effort.

No revision is necessary in the proposed regulations to address the comment.

Section 60622. Allowed Outdoor Uses.

C15.622-1:

Commenter 2 resubmitted their comment on this section, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.622-4 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

C15.622-2:

Commenter 4 stated their understanding that cooling tower make-up and street sweeping are not included in section 60622 of the proposed regulations. Commenter 4 requested confirmation on their interpretation that non-potable uses not stated in the proposed regulations are unregulated, and therefore the uses are not prohibited. As such, San Francisco onsite water reuse projects that include these end uses can continue to operate under local program rules and regulations.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. San Francisco onsite water reuse projects that include street

sweeping and cooling towers can continue to operate under local program rules and regulations. Please refer to C.620-1 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period” for use of onsite treated of nonpotable water for street sweeping and cooling towers.

No revision is necessary in the proposed regulations to address the comment.

C15.622-3:

Commenter 3 resubmitted their comment on this section, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.622-4 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

Section 60624. Use Area Requirements.

C15.624-1:

Commenters 2, 3, and 4 resubmitted their comments on subsection (i) of section 60624 of the proposed regulations, which were provided by the commenters during the 45-day comment period.

Response:

These comments are beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.624-1 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comments.

C15.624-2:

Commenter 5 indicated that requiring an air gap to protect the potable water system for all OTNWS installations will add significant costs and many existing installations would not be able to comply. The commenter noted that for many years, the Uniform Plumbing Code (including the California Plumbing Code) has allowed direct connections to backup water supplies for rainwater harvesting systems, so long as they are protected by an approved reduced pressure zone backflow assembly. The commenter indicated they believe a reduced pressure zone backflow assembly is a safe, effective means of protection for the potable water supply, at least for rainwater harvesting (roof runoff) systems.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. The requirement for no direct connection to a potable water supply is consistent with the California Plumbing Code. Please refer to 2022 California Plumbing Code section 1602.4 for nonpotable rainwater catchment systems and section 1505.4 for alternate water source systems.

No revision is necessary in the proposed regulations to address the comment.

Section 60630. Pathogen Log Reduction Targets.

C15.630-1:

Commenter 5 noted that the log reduction targets for stormwater and graywater seem excessive, given that the onsite treated water is used for non-potable uses. The commenter also noted that the U.S. EPA Long Term 2 Enhanced Surface Water Treatment Rule requirements, which are for potable water, do not mandate such high log reduction targets. The commenter noted that municipally treated reclaimed water systems are also not held to such high requirements. The commenter expressed concerns that the extremely high log reduction targets may mean most existing systems will no longer be economically viable, thereby leading to less systems designed and operating in the state, which would run contrary to the goals of water conservation. The commenter also stated that the log reduction targets for roof runoff do not seem excessive.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. The U.S. EPA Long Term 2 Enhanced Surface Water Treatment Rule requirements are treatment for unimpaired sources of drinking water for public water systems. While the proposed regulations are based on the same health risk target (annual infection of 10^{-4} per person), the source waters addressed in the regulations are subject to requirements for drinking water source assessment and protection.

As described in the ISOR for section 60630, graywater pathogen concentration was derived from the municipal wastewater dataset of Pecson et al. (2022b). It was assumed that graywater contained 1% of the pathogen concentrations found in municipal wastewater. This assumption is supported by Jahne et al. (2017) and Schoen et al. (2017).

The commenter's other concerns have been raised by other commenters and have been responded to by State Board staff under "Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period." Please refer to GC-4 regarding log reduction targets for stormwater, and GC-23 and GC-24 on cost concerns due to high LRTs and inconsistencies with water conservation goals.

Lastly, State Board staff appreciate the commenter's acknowledgement that the log reduction targets for roof runoff are reasonable.

No revision is necessary in the proposed regulations to address the comment.

Section 60632. Pathogen Control Treatment Trains.

C15.632-1:

Commenter 2 resubmitted their comment on Table 60632-1, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.632-6 under "Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period."

No revision is necessary in the proposed regulations to address the comment.

C15.632-2:

Commenter 2 resubmitted their comments on subsection (b) of section 60632 of the proposed regulations, which were provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.632-8 under "Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period."

No revision is necessary in the proposed regulations to address the comment.

C15.632-3:

Commenter 5 stated that the "approved treatment trains seemed to be biased toward the use of membrane bioreactors." The commenter acknowledged that MBRs are the only viable option for safe onsite wastewater treatment; however, MBR trains cost 4 to 5 times of a comparable treatment train using ozone – filtration – chlorination. The commenter also noted that they have many ozone treatment systems operating in California, and these systems are compliant with NSF 350. Disallowing ozone treatment or subjecting it to costly and cumbersome alternative treatment validation requirements means that a very effective and affordable treatment solution has been taken off the table. The commenter feels strongly that the number of stormwater/ graywater systems installed and employed will decrease drastically, given the push for MBR technology.

Commenter 5 also noted a concern that UV disinfection dose of >40 mJ/cm² for roof runoff collection systems on “green roofs” (i.e. roofs with vegetation) would not be achievable. The natural tannins/organics in the roof runoff will cause UVT levels to plummet. These systems will be in constant alarm. Only ozone systems are capable of quickly/effectively treating water up to safe levels when vegetation is growing on the collection roof area.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. The concerns raised by the commenter are addressed within other responses to comment. Under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period,” please refer to GC-22 addresses a similar concern regarding the proposed regulation’s preference for the use of MBR, and C.632-1 on the use of ozone treatment process as a supplementary treatment to pathogen control treatment train for color removal.

No revision is necessary in the proposed regulations to address the comment.

C15.632-4:

Commenter 3 resubmitted their comment on subsection (a) of section 60632 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.632-4 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

C15.632-5:

Commenter 3 resubmitted their comment on subsection (b) of section 60632 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.632-8 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

C15.632-6:

Commenter 5 stated that requiring UV disinfection systems to be certified to NSF 55 Class A will be challenging for equipment suppliers and installers as there are limited UV disinfection systems that are certified at higher flow rates (over 30 gallons per minute). A commercial system that treats 100 – 300 gallons per minute would require between 10-15 lamps and significantly more piping, controls, and space to operate. Alternatively, more non-NSF 55 Class A systems are available for treatment of larger flows.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. NSF 55 Class A UV disinfection systems are required for pathogen control treatment trains specified in section 60632. Alternative UV disinfection systems can be proposed as a part of the alternative treatment train in accordance with section 60634. Please also see responses to comment C.632-8.

No revision is necessary in the proposed regulations to address the comment.

Section 60634. Alternatives.

C15.634-1:

Commenter 7 suggested that subsection (c)(1) of section 60634 of the proposed regulations be revised to remove the word “solely” from the requirement for the concern that a pathogen control treatment train (PCTT) that incorporate a supplementary treatment process would be considered an alternative treatment train. The commenter provided an example of “MBR – UV – Chlorine” as a PCTT and questioned whether a train with “MBR – Ozone/BAC – UV – Chlorine” would be considered an alternative treatment train. The commenter also suggested a revision to state that additional treatment technologies can be added to the “base train” provided that the base train technologies and associated critical limits are retained.

Response:

Please see response to C.632-1. A pathogen control treatment train can include a supplementary treatment process whose purpose is not for meeting the pathogen log reduction requirement (such as addressing color removal or pretreatment). The pathogen control treatment, including its supplementary treatment process(es), would not be considered an alternative treatment train.

No revision is necessary in the proposed regulations to address the comment.

Section 60642. Continuous Process Verification Monitoring.

C15.642-1:

Commenters 2 and 4 resubmitted their comments on subsections (c)(3)(E), (d)(3)(E), (e)(3)(E), (f)(3)(E) of section 60642 of the proposed regulations, which were provided by the commenters during the 45-day comment period.

Response:

These comments are beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.642-1 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comments.

C15.642-2:

Commenter 3 resubmitted their comment on subsection (c)(3)(A) of section 60642 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.642-2 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comments.

C15.642-3:

Commenter 3 resubmitted their comment on subsection (c)(3)(B) of section 60642 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.642-5 under “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comments.

C15.642-4:

Commenter 5 indicated the UV doses required by this section will be very difficult to achieve and opined that it is not worth offering a UV option for stormwater and graywater given this requirement, which will likely force all projects to use MBR. Commenter 5 strongly recommends that the State Board consider adding an option for ozone treatment + filtration + chlorination and indicated this option could potentially be four to five times less expensive than comparable MBR systems, which would help encourage water recycling efforts.

Response:

These comments are beyond the scope of the changes proposed during the 15-day comment period. NSF 55 Class A UV disinfection units can be installed in series to achieve the required higher dose. The commenter's point regarding providing a treatment train option for ozone treatment – filtration – chlorination is addressed in C15.632-3.

No revision is necessary in the proposed regulations to address these comments.

Section 60672. Automatic Diversion.

C15.672-1:

Commenter 4 resubmitted their comment on subsection (d) of section 60672 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment in C.672-2 under "Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period."

No revision is necessary in the proposed regulations to address the comments.

C15.672-2:

Commenter 5 questioned whether the requirements in subdivision (d) of section 60672 of the proposed regulations should only apply to systems with MBR and expressed concern at the ineffectiveness of requiring approval from the local jurisdiction prior to restarting OTNWS operations after a diversion event. The commenter provided examples of UV systems and ozone - chlorine systems that begin recirculating water if certain parameters are not met but will automatically deliver onsite treated water only when those parameters are met.

Response:

These comments are beyond the scope of the changes proposed during the 15-day comment period. State Board staff appreciate the example of fully automated treatment trains that auto-resolve situations where a critical limit is not met. The intent of section 60672 is to ensure that delivery of inadequately treated water does not occur and that each treatment process is optimally designed, commissioned, and operated to minimize diversion events. Section 60672 is applicable to all treatment trains, not just treatment trains with MBR. While the proposed regulations require that local jurisdiction approval must be obtained, it is not required for local jurisdiction personnel to be onsite to provide the approval.

No revision is necessary in the proposed regulations to address the comments.

Section 60674. Reliability Requirements for Disinfection Unit Processes.

C15.674-1:

Commenter 7 acknowledged that subsection (b) of section 60674 of the proposed regulations allows automatic diversion when chlorine disinfection system fails in lieu of requiring redundant disinfection equipment.

Response:

The commenter is correct. Subsection (b) allows automatic diversion in lieu of reliability features for chlorine disinfection process.

No revision is necessary in the proposed regulations to address the comment.

Section 60678. Microbial Regrowth Control for Storage and Distribution.

C15.678-1:

Commenter 7 acknowledged that subsection (a) of section 60678 of the proposed regulations has been deleted, which means the onsite treated nonpotable water temperature in the OTNWS treated water storage tank does not have to be maintained below 25°C.

Response:

The commenter is correct. Temperature of onsite treated nonpotable water treated water tank no longer needs to be monitored.

No revision is necessary in the proposed regulations to address the comment.

C15.678-2:

Commenter 3 resubmitted their comment on subsection (a) of section 60678 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment on C.678-2 in the “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

Section 60680. Engineering Report.

C15.680-1:

Commenter 3 resubmitted their comment on subsection (b) of section 60680 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment on C.680-2 in the “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

C15.680-2:

Commenter 5 expressed concerns regarding the requirement in the proposed regulations for a licensed engineer in California with a minimum of three years of experience to prepare the engineering report. The commenter indicated there would be great challenges in getting engineering reports compiled and completed in advance of commercial construction projects as it would require multiple parties to coordinate their work. Commenter 5 indicated they want to be on record as saying, “based on our many years of experience, this will be a real challenge for all parties involved.”

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period. The proposed regulations require that an engineering report be prepared by properly qualified engineer, licensed in California, with 3 years of wastewater treatment experience. This requirement ensures that the engineering report preparer is sufficiently knowledgeable of the technical and regulatory requirements to ensure that the design, planning, and subsequent operation of the OTNWS is in the manner that is protective of public health. The proposed regulations would establish statewide health-risk based standards for broader uses of alternate water sources. To many local jurisdictions, these are new uses that only a select few California local jurisdictions have experience regulating. A minimum qualification for an engineering report preparer is appropriate to ensure that an OTNWS is properly designed and engineered for operation that is protective of public health and minimizes the potential public health hazards.

No revision is necessary in the proposed regulations to address the comment.

Section 60684. Commissioning Plan and Report.

C15.684-1:

Commenter 4 resubmitted their comment on the section, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment on

C.684-1 in the “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

C15.684-2:

Commenter 3 resubmitted their comment on the section which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment on C.684-3 in the “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

Section 60692. Signage.

C15.692-1:

Commenter 6 expressed appreciation that the revised regulation text reflects the requirement for signs to specify “onsite treated” and that signs are not required to be purple. The commenter requested that the regulation text is further revised to not mention purple signs to be consistent with the California Plumbing Code. The commenter also noted the preference that purple signs are primarily used and associated with municipal recycled water.

Response:

The proposed regulation text allows flexibility for using any contrasting color (for example, purple), consistent with existing state regulations. The local jurisdictions can further specify within their local jurisdiction program rules on the preference for purple or any other contrasting color, even if the requested regulation text revision is made.

No revision is necessary in the proposed regulations to address the comment.

Section 60704. Cross-connection Test.

C15.704-1:

Commenter 4 resubmitted their comment on the section, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment on C.704-4 in the “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

Section 60710. Discovery of Cross-connection.

C15.710-1:

Commenter 6 resubmitted their comment on subsection (a)(1) of section 60710 of the proposed regulations, which was provided by the commenter during the 45-day comment period.

Response:

This comment is beyond the scope of the changes proposed during the 15-day comment period; however, State Board staff provided a response to this comment on C.710-2 in the “Summary of and Response to Oral and Written Public Comments Received During the 45-day Comment Period.”

No revision is necessary in the proposed regulations to address the comment.

STATE BOARD ADOPTION HEARING

On November 18, 2025, after the close of the 45-day and 15-day public comment periods, the State Board held a regularly scheduled board meeting, during which the four State Water Resources Control Board Members¹⁰ considered a resolution to adopt the proposed regulations.¹¹ At the hearing, a brief presentation was provided to the public, as well as an opportunity for the public to present oral statements. Six members of the public delivered oral statements. The State Board responded to several of these comments during the meeting, and those responses are documented in the board meeting transcript.¹² The following section summarizes these responses, along with responses to comments that were not responded to during the board meeting. Following the presentation and oral statements, the State Water Resources Control Board Members passed [Resolution No. 2025-0036](#), thereby adopting the proposed regulations. The proceedings as well as other pertinent documents have been placed in the rulemaking file.

The table below presents a record of those having provided oral comments at the November 18, 2025, board meeting. Unless otherwise noted, the number associated with a specific commenter(s) in the comment summaries and responses sections that follow correspond to the numbers assigned to the commenter(s) in the tables below.

¹⁰ Board members present at the November 18, 2025, board meeting: E. Joaquin Esquivel (Chair), Dorene D'Adamo (Vice Chair), Laurel Firestone, and Nichole Morgan. Board member Sean Maguire was not present at the board meeting.

¹¹ The State Board's consideration of the adoption of the proposed regulations was agendized as [Item 4](#).

¹² November 18, 2025, Board meeting item 4 transcript is provided in tab L part (4) of the Rulemaking File.

Table 5: Commenters Providing Oral Comment at the November 18, 2025, Board Meeting

No.	Name	Affiliation
1	Richard Ross	Epic Cleantec
2	Marty Farrell	California Coastkeeper Alliance
3	Patrick McDonough	San Diego Coastkeeper
4	Jerry Desmond	Plumbing Manufacturers Alliance
5	Benjamin Harris	Los Angeles Waterkeeper
6	Rosario Cortés	WateReuse California

Oral Comments Received at Board Meeting

This section addresses received comments at the November 18, 2025, Board Meeting.

OC-1:

Commenter 1 reiterated comments that they had submitted during the 15-day comment period, specifically on the following items: (1) considerations for existing OTNWSs that are using onsite treated nonpotable water for cooling tower make-up and indoor irrigation that will be in a regulatory gray area until the regulations are updated; (2) clarification document on regulatory pathways for projects located in areas in which a local jurisdiction does not want to establish a program, or for projects that are not served by a municipal sewer collection system; and (3) clarification on allowing the use of membrane filtration when specifying membrane bioreactors as a technology within prescriptive treatment trains treating stormwater. The commenter stated that addressing these comments will help move regulatory implementation and planned projects forward, and more water reuse on a faster timetable.

Response:

Please refer to responses C.620-1 and C15.622-2 addressing cooling tower make-up and other uses not covered in the proposed regulations; response GC-10 addressing regulatory pathways for OTNWS permitting outside of a local jurisdiction program; and responses GC-22, C.632-5, and C.632-6 on the use of membrane filtration or MBR in prescriptive treatment trains treating stormwater.

No revisions were made to the proposed regulations as a result of these comments.

OC-2:

Commenters 2 and 3 raised concerns that the proposed regulations are very stringent and may discourage stormwater capture and reuse for irrigation. Commenter 2 asked if the proposed regulations would result in Los Angeles RWQCB CII permit compliance option 2 for capture and infiltration be “prohibitively expensive or burdensome,” and if all

industrial dischargers would be required to pre-treat water for dust suppression and irrigation. Commenter 3 sought clarification on the applicability of the proposed regulations to stormwater infiltration projects and irrigation only projects. Commenter 3 noted that the stormwater capture and reuse for outdoor applications should not be so stringently regulated, especially in Southern California, where there's a tremendous thirst for the irrigated spaces, such as parks and landscapes around big-box store parking lots.

Response:

Please see response to GC-1 addressing how the proposed regulations interface with the Los Angeles RWQCB CII permit. No revisions were made to the proposed regulations as a result of these comments.

OC-3:

Commenter 4 noted the importance and value of establishing a maximum of free chlorine residual level at four milligrams per liter as it would be effective in preventing excessive chlorine concentrations that can accelerate corrosion and damage the plumbing system. The commenter looks forward to engaging with the State Board and local jurisdictions once the regulations are adopted and onsite water reuse programs are in place. The commenter is looking forward to sharing information so it can benefit local jurisdictions and system owners in protecting their OTNWSs.

Response:

The minimum free chlorine residual provided in the regulation sections for the pathogen control treatment train continuous process verification monitoring are established to reach sufficient disinfection to achieve pathogen log reduction/inactivation. State Board staff recognize the importance of water quality parameters that are supportive of plumbing product performance to ensure they function as intended by the manufacturer. Corrosion control is a required element of the Operations Plan for all OTNWSs (section 60686, subsection (a)(4)), which share the objectives for maintaining an upper limit on free chlorine residual. This requirement is applicable for all OTNWSs subject to the proposed regulations.

No revisions were made to the proposed regulations as a result of this comment.

OC-4:

Commenter 5 agreed with Commenters 2 and 3, emphasizing the need to ensure that the proposed regulations should not discourage stormwater capture for irrigation purposes, particularly in urban regions like San Diego, Los Angeles, and Bay Area, where stormwater reuse plays a key role in local water management. Commenter 5 raised a concern about how the proposed regulations apply to regional stormwater capture projects, such as a park that collects off-site MS4 stormwater and reuses it for irrigation. The proposed regulations do not classify this activity as rainwater collection or graywater collection, and it is unclear to the commenter if [off-site] stormwater capture,

consolidation, and use for irrigation at a site would require treatment subject to the proposed regulations. Commenter 5 cited Penmar Park as one example of a stormwater capture project in the City of Los Angeles that originally planned to reuse water for irrigating a golf course and parks; however, the City found that it was too costly to continue meeting the treatment required for reuse, and the project was converted into treatment for discharge to waters of the state. Commenter 5 asked that staff clarify whether off-site stormwater capture and reuse are exempted from the proposed regulations, so urban project proponents can continue using off-site stormwater for irrigation and other non-potable outdoor uses.

Response:

As discussed during the November 18, 2025, board meeting, the State Board acknowledged that the proposed regulations address a specific subset of stormwater capture (i.e. onsite capture, treatment, and reuse of alternate water sources) and are not intended to address off-site capture and reuse activities. The State Board is addressing this issue in a separate regulatory program effort. The State Board's Division of Water Quality held a public workshop on urban stormwater capture and use on the afternoon of November 18, 2025, to present current urban stormwater capture and use initiatives and discuss ways to reduce impediments to broader implementation of stormwater capture and use.

No revisions were made to the proposed regulations as a result of these comments.

OC-5:

Commenter 6 emphasized that, as required by SB 966, local agency consultation with water and sewer agencies is critical to ensure that there are no adverse impacts to the sewer collection system, planned recycled water projects, existing community-scale recycled water systems, or receiving waters. Commenter 6 expressed appreciation for State Board staff in addressing WaterReuse California members' questions. While they understand not every recommendation will be taken, they felt heard and appreciated the public process.

Response:

The State Board appreciates the commenter's leadership in communicating feedback from the California water reuse community. The State Board agrees that local agency consultation with water and sewer agencies is critical to the implementation of the proposed regulations to ensure that there are no adverse impacts to the sewer collection system, planned recycled water projects, existing community-scale recycled water systems, or receiving waters.

No revisions were made to the proposed regulations as a result of these comments.

POST COMMENT PERIOD REVISIONS

Following the comment periods, the State Board recognized typographical errors in the proposed regulations. The revisions made to the following sections summarized in the table below are non-substantive and have no regulatory effect.

Table 6: Summary of Post Comment Period Revisions (Non-Substantive and No Regulatory Effect)

Section	Purpose of Change
60600 (j)	Non-substantive revision to capitalize the letter “c” in “chapter” and to correct grammatical errors.
60600 (z)	Non-substantive revision to capitalize the letter “c” in “chapter.”
60600 (ff)(3)	Non-substantive revision to correct grammatical errors.
60600 (hh)	Non-substantive revision to remove extra text and for document style consistency
60600 (nn)	Non-substantive revision to add a missing word (“system”).
60600 (x)	Non-substantive revision to correct grammatical errors.
60600 (z)	Non-substantive revision to capitalize the letter “c” in “chapter.”
60604 (b)	Non-substantive revision to correct grammatical errors.
60670 (b)	Non-substantive revision to correct grammatical errors.
60678 (b)	Non-substantive revision to correct grammatical errors.
60680 (c)(3)(E)	Non-substantive revision for document style consistency.
60680 (c)(6)	Non-substantive revision to correct grammatical errors.
60680 (c)(7)	Non-substantive revision to correct grammatical errors.
60680 (c)(10)(G)	Non-substantive revision to correct grammatical errors.
60680 (c)(14)	Non-substantive revision for document style consistency.
60680 (c)(15)	Non-substantive revision for document style consistency.
60682 (a)	Non-substantive revision to correct grammatical errors.
60686 (a)	Non-substantive revision to correct grammatical errors.
60686 (a)(8)	Non-substantive revision to correct grammatical errors.
60686 (a)(8)	Non-substantive revision to correct grammatical errors.
60688 (c)	Non-substantive revision to correct grammatical errors.
60688 (e)	Non-substantive revision to correct grammatical errors.

Section	Purpose of Change
60690 (b)	Non-substantive revision to correct grammatical errors.
60692 (b)	Non-substantive revision for document style consistency.
60692 (d)	Non-substantive revision for document style consistency.
60692 (e)	Non-substantive revision to correct grammatical errors.
60702 (b)	Non-substantive revision for document style consistency.
60702 (b)(3)	Non-substantive revision for document style consistency.
60702 (b)(4)	Non-substantive revision for document style consistency.
60704 (c)(3)	Non-substantive revision to correct grammatical errors.
60704 (c)(8)	Non-substantive revision to correct grammatical errors.
60704 (c)(10)	Non-substantive revision to correct grammatical errors.

STATEMENTS OF DETERMINATION

Mandate Determination – Local Agencies and School Districts

(Gov. Code, §11346.9, subd. (a)(2))

The State Board has determined that the proposed regulations would not impose a mandate on local agencies or school districts that require state reimbursement. The State Board implemented a statutory mandate in Water Code section 13558. The regulations do not require any entity to install or operate any OTNWSs, and the regulations do not impose unique requirements on local governments. No state reimbursement is required.

Alternatives Considered

(Gov. Code, §11346.9, subd. (a)(4))

The State Board has determined that no alternative considered by the State Board would be more effective in carrying out the purpose for which the regulations are proposed, would be as effective as and less burdensome to affected private persons than the adopted regulations, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law. The adoption of these proposed regulations was expressly required by Water Code section 13558, so there is no alternative to the adoption of these proposed regulations. As explained in the ISOR and the FSOR, each of the proposed provisions is necessary for the protection of public health. Additionally, no alternatives were proposed to the State Board that would lessen any adverse economic impact on small businesses.

The State Board implemented a statutory mandate in Water Code section 13558 and the regulations do not require any entity, including private persons or small businesses, to install or operate any OTNWS.

ADDITIONAL STATEMENTS

Incorporation by Reference

(Cal. Code Regs., tit. 1, § 20, subd. (c)(1), (2))

As described in the ISOR, the State Board is incorporating by reference NSF 55-2019 – Ultraviolet Microbiological Water Treatment System. Incorporation by reference is necessary because, due to its nature and volume, it would be too cumbersome, unduly expensive, and impractical to publish the standard in the California Code of Regulations. The documents incorporated by reference are listed in Appendix A (Documents Incorporated by Reference) of the ISOR and were made available to the public upon request from the State Board contacts listed in the ISOR.

On August 1, 2025, in the Notice of Availability of Changes to the Proposed Regulation Text (Notice of Availability of Changes), the State Board indicated that it is incorporating by reference of NSF 55-2024 – Ultraviolet Microbiological Water Treatment System to replace NSF 55-2019. A weblink for the document is listed in the Notice of Availability of Changes and can be made available to the public upon request from the State Board contact listed in the Notice of Availability of Changes.

Public Notice Mailing

The State Board has complied with Government Code section 11346.4, subdivisions (a)(1) through (a)(4) regarding the mailing of notice of proposed action at least 45 days prior to public hearing or close of the public comment period. The notice was both mailed and electronically mailed on or before March 21, 2025, which was 48 calendar days prior to the close of the public hearing on May 8, 2025, and 49 calendar days prior to the close of the public comment period on May 9, 2025.

The State Board also complied with Government Code section 11346.8, subdivisions (a) through (e), as well as California Code of Regulations, title 1, section 44 regarding the mailing of the notice of proposed action at least 15 days prior to the close of the public comment period. The notice was both mailed and electronically mailed on or before August 1, 2025, which was 18 calendar days prior to the close of the public comment period on August 19, 2025.

Public Hearing Statement

The State Board held a public hearing in Sacramento on May 8, 2025. The location, time, and date of the hearing was provided in the [public notice for the regulatory action \(SBDDW-22-001\)](#).

California Environmental Quality Act

In the resolution adopting the proposed regulatory text, [Resolution No. 2025-0036](#), the State Board found the following:

“13. The California Environmental Quality Act (CEQA) provides an exemption for classes of projects which have been determined by the Secretary for Natural Resources to have no significant effect on the environment and are, therefore, declared to be categorically exempt from the requirement for the preparation of environmental documents pursuant to Public Resources Code section 21084 and title 14 of the California Code of Regulations, section 15300. Title 14 of the California Code of Regulations, section 15307 provides that Class 7 exemptions consist of actions taken by regulatory agencies to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. Additionally, title 14 of the California Code of Regulations, section 15308 provides that Class 8 exemptions consist of actions taken by regulatory agencies to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment;

14. The State Water Board finds that adoption of the proposed regulations represents actions taken by a regulatory agency pursuant to its general and specific statutory authority for the maintenance and protection of the environment and natural resources, most centrally, relating to surface waters and groundwater, which are both critically limited in many areas of California and are of critical importance to California’s diverse ecosystems. Onsite treatment and reuse of nonpotable water projects may allow Californians to collect, treat, and safely use alternate water sources for beneficial purposes and offset uses of potable water from nonpotable water uses. When implemented collectively, onsite treatment and reuse of nonpotable water would reduce the dependence of these premises on other sources of potable water and result in more water available for uses such as the protection and enhancement of natural resources and the environment. Water Code section 13558.1, subdivision (a) requires that onsite treated nonpotable water systems be installed under a local jurisdiction program, which includes permitting procedures. Local jurisdictions that elect to establish a program for onsite treated nonpotable water systems must adopt a local program through a local ordinance, at which time, a program-specific CEQA analysis can be undertaken by the local jurisdiction. The State Water Board finds that there are no facts on the record to indicate or suggest that the proposed regulations fall within any of the enumerated exceptions for the appropriate use of a categorical exemption as set forth in title 14 of the California Code of Regulations, section 15300.2. Accordingly, the adoption of the proposed regulations satisfies the requirements of title 14 of the California Code of Regulations, sections 15300, 15307, and 15308, and is both a Class 7 and Class 8 categorically exempt project under CEQA;”

On November 18, 2025, the State Board submitted a Notice of Exemption to the Office of Planning and Research. The Notice of Exemption was published on November 19,

2025 ([SCH No. 2025110732](#)), on which date the 35-day statute of limitations commenced for the filing of any action challenging the State Board's determination that the adoption of the proposed regulatory text is exempt from CEQA. The State Board has received no notice of any litigation or action filed challenging this determination.

Additional Statement of Non-Substantive Regulatory Text Revision

After review by Office of Administrative Law, State Board staff revised the subsection (i) of section 60624 by substituting the word "facilities" with "buildings" in the second sentence of the subsection because the words have the same meaning and are interchangeable within the section. The revision made to this section is non-substantive and has no regulatory effect.