

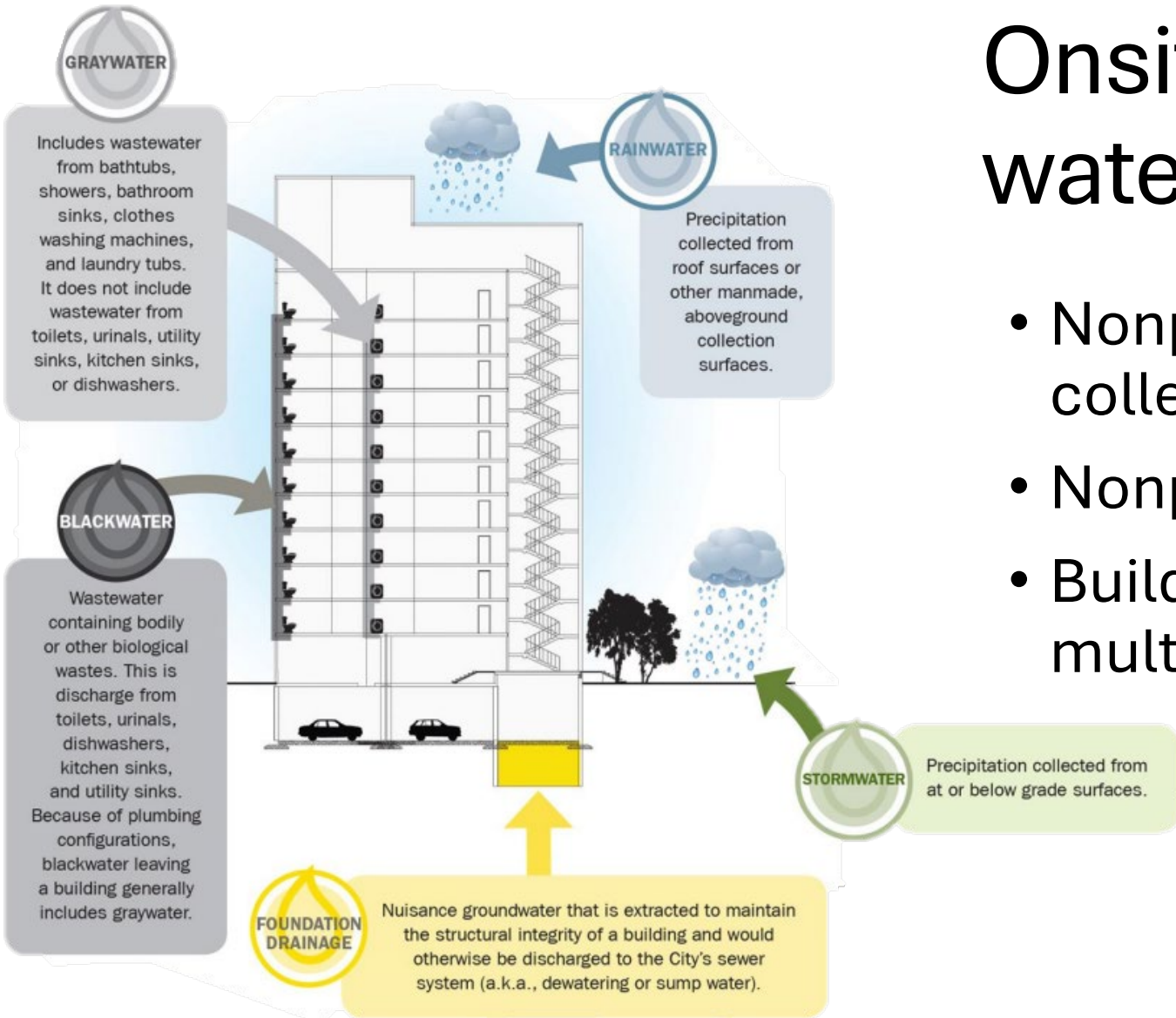
Regulations for Onsite Treatment and Reuse of Nonpotable Water

Update for WateReuse California Legislative and Regulatory
Committee

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Onsite treated nonpotable water systems



- Nonpotable water sources are collected, treated, and used onsite
- Nonpotable uses
- Building scale projects (single or multi-building)

Credit: [San Francisco PUC – Onsite Water Reuse program schematic](#)

Statutory mandate & deadline

- [CWC 13558](#) requires that the Water Board, in consultation with CA Building Standards Commission and the Department of Housing and Community Development (HCD), adopt regulations for **risk-based water quality standards** for the onsite treatment and reuse of nonpotable water for nonpotable end uses in **multifamily residential, commercial, and mixed-use buildings** by **December 1, 2022**

Minimum regulations scope

- 1) Risk-based log reduction targets for the removal of pathogens such as enteric viruses, parasitic protozoa, and enteric bacteria for nonpotable water sources, graywater, rainwater, stormwater, and blackwater, and nonpotable end uses, toilet flushing, clothes washing, irrigation, and dust suppression
- 2) Water quality monitoring requirements
- 3) Reporting requirements for the water quality monitoring results
- 4) Notification and public information requirements
- 5) Cross-connection controls

“OTNWS” is not new

- The California Plumbing Code (Title 24, Part 5)
 - Chapter 15 – Alternate Water Sources for Nonpotable Applications
 - 1506.0 Onsite treated nonpotable gray water systems
 - Chapter 16 – Nonpotable Rainwater
- Implementation by local jurisdictions through issuance of construction (“building”) permits
 - Exception: “laundry-to-landscape” is exempted from construction permits so long as the installation meets code requirements (CPC 1503.1.1)

Exempted by statute

- **Untreated graywater systems** that are used exclusively for **subsurface irrigation** that are regulated by Chapter 15 of the California Plumbing Code
- **Untreated rainwater systems** that are used exclusively for **surface, subsurface, or drip irrigation** that are regulated by Chapter 16 of the California Plumbing Code

Implementation by local jurisdiction

- **Statutes grant implementation authority** to the local jurisdictions (City, County, City and County)
 - Consistent with current approach for permitting alternate water source systems
- Local jurisdictions **have the choice** to establish a program for permitting OTNWS
 - Adopt through ordinance
 - Statutory requirements for establishing local programs in [CWC 13558\(b\)](#)

Local jurisdiction must consult

- Consultation is required prior to local program & ordinance adoption with sewer and water service providers to communicate potential significant adverse impacts to the following:
 - existing sewer collection or treatment,
 - existing centralized water recycling program,
 - Receiving waters.

State Water Board limited role

- State Water Board is **prohibited** from administering a local jurisdiction's program
- State Water Board receives annual report from local jurisdiction programs
- State Water Board can direct a local jurisdiction to terminate the operation of any OTNWS

Statutory mandate, continued

At a minimum, regulations must address:

- 1) **Risk-based log reduction targets for the removal of pathogens** such as enteric viruses, parasitic protozoa, and enteric bacteria for nonpotable water sources, graywater, rainwater, stormwater, and blackwater, and nonpotable end uses, toilet flushing, clothes washing, irrigation, and dust suppression
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Purpose of the regulations

- Address building scale installations in urban setting that are
 - Served by existing water and sewer infrastructure
 - Subject to local jurisdiction oversight
- Fill the regulatory gap on statewide criteria for treatment and reuse of alternate water sources
 - Address systems treated non-potable water sources beyond domestic wastewater
 - Generally, not regulated through WDRs

Selected regulatory elements

- Definition of OTNWS
- Risk based pathogen log reduction targets
- Treatment trains
- Opportunistic pathogen control

Definition of OTNWS

- Not explicitly defined in the statutes
 - When statutes are unclear, regulations can interpret
- Definition in the proposed regulation is subject to the rulemaking process

An OTNWS is subject to the new regulations if ...

- Collects and treats source waters onsite
- Distributes the treated water for use onsite for nonpotable purposes
- Connects to community sewer system as its only means for discharge of waste

Risk-based pathogen log reduction targets

Alternate Water Source	Use Type	Enteric Virus	Giardia	Cryptosporidium
Blackwater	Indoor use	8.0	6.5	5.5
Blackwater	Outdoor use	7.5	5.5	5.0
Graywater	Indoor use	7.0	5.5	4.5
Graywater	Outdoor use	6.5	4.5	4.0
Stormwater	Indoor use	6.0	4.5	3.5
Stormwater	Outdoor use	5.5	3.5	3.0
Rainwater	Indoor use	-	1.5	-
Rainwater	Outdoor use	-	1.0	-

Types of uses

- **Indoor uses:**

- Toilet flushing, urinal flushing, drain trap priming
- Clothes washing

- **Outdoor uses:**

- Ornamental plant & landscape irrigation
- Dust suppression
- Decorative fountain
- Car washing

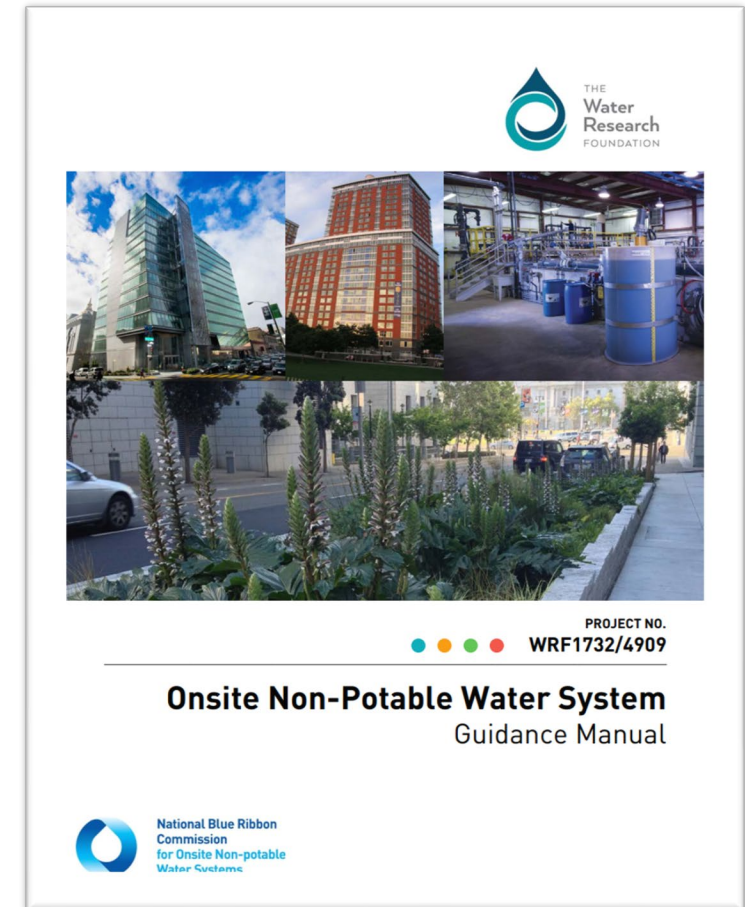
DDW approach on LRTs

- Not to reinvent the wheel.
- Starting point: LRTs published in 2017 WE&RF report
- Established an expert panel to re-evaluate 2017 LRTs and if necessary, recommend an update for California regulations
 - Published in Risk-based treatment targets for onsite non-potable water systems using new pathogen data | Journal of Water and Health | IWA Publishing



Risk-based (water quality) standards

- “To make water suitable for onsite reuse, risk-based treatment standards were developed to reduce the concentration of pathogens down to acceptable levels.”
- Derived by quantitative microbial risk analysis (QMRA), a tool for estimating human health risk from exposure to pathogens.



Treatment trains

- Pathogen control treatment trains
 - Pre-set trains with prescribed operational limits
 - Combination of MBR, membrane filtration, UV disinfection, chlorination
- Alternative treatment trains
 - Catch-all for everything not covered by the pathogen control treatment trains
 - Must demonstrate at least equal degree of public health protection

Opportunistic pathogen control & monitoring

- Controlling bacterial regrowth in the storage and distribution systems (e.g. *Legionella*)
- OTNWS must be designed to monitor and confirm that a disinfectant residual of either **free chlorine or chloramine** be maintained at concentrations **more than 0.2 mg/L** at farthest end-use fixtures.
- The regulations propose monitoring weekly using a hand-held chlorine residual instrument & continuous monitoring of water storage tank temperatures.

Anticipated rulemaking schedule



Statutory deadline
December 1, 2022



State Board adoption goal
December 31, 2025



CA Notice Register
late March 2025



Public comment period
through early May 2025*

*APA public hearing is scheduled \pm 3 days prior to close of comment period.

Effective date of regulations, if adopted

- Depending on Office of Administrative Law (OAL) approval & filing with the Secretary of State (SOS)
 - OAL review 30 calendar days
 - Effective date based on SOS filing
 - Dec 1 – Feb 29 → April 1
 - Mar 1 – May 31 → July 1
 - Jun 1 – Aug 30 → October 1
 - Sep 1 – Nov 30 → Jan 1

But wait, we are not done!

- **Within 12 months** of State Board adopting regulations, the Department of Housing and Community Development, in consultation with the State Board, must adopt corresponding building standards (CCR Title 24) to support State Water Board regulations
- Potential building standards adoption with the 2027 triennial code adoption cycle

Questions?

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State Board Webpage:
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/onsite_nonpotable_reuse_regulations.html

