Graywater Reuse Regulations across U.S. States

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Document Summary

This document provides a comprehensive summary of graywater regulations across seven U.S. states: Arizona, California, Florida, Georgia, New Mexico, Oregon, and Texas. Each of these states permits, to varying degrees, the use of graywater for toilet and urinal flushing, reflecting a range of regulatory approaches to onsite non-potable water reuse.

The review highlights differences in treatment standards, permitting systems, and approved uses, illustrating the diversity of strategies states employ to ensure public health and safety. By examining these frameworks, this document aims to provide a reference point for evaluating Illinois' current regulations and identifying potential models for policy improvement/changes. This analysis provides a foundation for the iCAP Land and Water team to inform potential future efforts to update or improve graywater reuse regulations in Illinois.

Arizona

Summary: Arizona's 2001 Gray Water Law established a structured framework for graywater reuse, with a three-tier regulatory approach for irrigation and indoor toilet flushing. Many other states have modeled their graywater policies on Arizona's 2001 framework.

- Residential single-family indoor toilet flushing is conditionally allowed, pending formal rules from the Arizona Department of Water Resources (ADWR) Director.
- Non-residential reuse (commercial, institutional) is permitted under a general or individual permit if treatment standards are met.
- All systems require treatment to minimum quality standards, dedicated piping, and measures to prevent human contact.

Three-Tier System Approach:

- Type 1 – Residential Single-Family:
    - Systems using under 400 gallons/day are permitted by right if they meet basic design criteria.

    - Indoor toilet flushing is allowed before formal rules are adopted, provided systems:
        - Use less than 400 gallons/day.
        - Are NSF/ANSI Standard 350 certified for residential graywater recycling.
        - Prevent human contact.
        - Have dedicated piping supplying only treated graywater to toilets.
        - Function properly to supply water only when the system is operating correctly.
    - The ADWR Director may later set formal minimum public health/safety rules for residential indoor systems.
- Type 2 – Commercial, Multi-Family, Institutional:
    - Systems using 400–3,000 gallons/day require a general permit.
    - Graywater may include sinks and laundry, but kitchen wastewater requires special approval.
- Type 3 – Large-Scale Systems:
    - Systems over 3,000 gallons/day are evaluated case by case under individualized permits.

Non-Residential Graywater (Irrigation & Toilet Flushing):

- Applicants may propose reuse of kitchen and dishwasher wastewater in addition to typical graywater, but must demonstrate appropriate treatment.
- Treated graywater can be used for toilet flushing or irrigation, but specific design specifications are evaluated in the permitting process.

Incentives & Local Requirements:

- Tax credits are available for graywater construction and plumbing retrofits.
- City of Tucson (2010) requires all new residential construction projects to incorporate dual plumbing to enable future reuse of graywater.

References:

Arizona Legislature. (n.d.). *Gray water reuse; residential standards; rules* (Ariz. Rev. Stat. § 49-204). https://www.azleg.gov/ars/49/00204.htm Arizona Legislature

Arizona State University Water Resources Research Center. (2011). *Water reuse handbook*. https://icap.sustainability.illinois.edu/files/projectupdate/7640/WaterReuseHandbook_August2011_0.pdf Arizona Legislature+1

University of Arizona. (2022). *Graywater guidelines*. https://waterwise.arizona.edu/sites/waterwise.arizona.edu/files/2022-08/Graywater_Guidelines-copy.pdf Water Wise

Arizona Secretary of State. (n.d.). *Title 18 Environmental Quality: Department of Environmental Quality — water quality standards and general permits*. https://apps.azsos.gov/public_services/Title_18/18-09.pdf

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California

Summary: California allows the onsite non-potable reuse of treated graywater for several applications, including toilet and urinal flushing, landscape irrigation, and ornamental fountains. The state identifies graywater as an eligible source of onsite collected water for these uses.

- Local authorities may adopt more stringent requirements than NSF/ANSI 350.
- The California Plumbing Code (Title 24, Part 5) provides the main regulatory framework for graywater reuse.
- Minimum water quality treatments for graywater systems are determined by the local public health authority.

Definition of Graywater

- Under California law, “graywater” refers to untreated wastewater that has not been contaminated by toilet discharge or unhealthy bodily wastes.
- Examples include wastewater from bathtubs, showers, clothes-washing machines, and laundry tubs, but not from kitchen sinks or dishwashers.

Approved Onsite Non-Potable Uses

Per *California Plumbing Code, Title 24, Part 5*, graywater treated by onsite non-potable graywater treatment systems may be used for:

- Toilet and urinal flushing.
- Above- and below-ground irrigation.
- Trap primers for floor drains and floor sinks.

Treatment and Performance Standards

- Minimum water quality requirements for onsite non-potable graywater systems are determined by the local public health authority.
- Local jurisdictions are not required to regulate these systems. However, in the absence of local treatment standards, systems must comply with NSF/ANSI Standard 350 requirements.
- Graywater used for toilet and urinal flushing must be disinfected via chlorination, ultraviolet light (UV), ozone, or other methods approved by the local health authority.

References:

U.S. Environmental Protection Agency. (n.d.). *Summary of California's water-reuse guideline or regulation: Onsite nonpotable water reuse*. EPA. https://www.epa.gov/waterreuse/summary-californias-water-reuse-guideline-or-regulation-onsite-non-potable-water-reuse

International Association of Plumbing and Mechanical Officials. (2019). *California Plumbing Code (Title 24, Part 5)*. IAPMO. https://epubs.iapmo.org/2019/CPC/index.html

California Legislature. (2018). *Senate Bill 966: An act to enact Section 13558 of the Water Code, relating to water reuse.* https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB966

Florida

Summary: Florida approves onsite non-potable reuse of graywater, including for toilet and urinal flushing, under the Florida Plumbing Code (2017). The law clearly distinguishes between residential and commercial systems.

- Residential and commercial reuse is allowed, but scale determines permit and design requirements.
- Safety compliance is tied to NSF/ANSI 350 certification.

System Categories:

- Residential Systems:
  - Daily graywater uses up to 1,500 gallons/day.
  - Permitted for toilet and urinal flushing with proper design and treatment.
- Commercial Systems:
  - Daily graywater use exceeds 1,500 gallons/day.
  - Must obtain a permit for use.

Standards & Treatment Requirements:

- Systems must comply with NSF/ANSI Standard 350, an American National Standard (voluntary and consensus-based standard) for greywater recycling.
  - NSF = National Sanitation Foundation, ANSI = American National Standards Institute.

    - Covers design, performance, and safety of graywater recycling systems for non-potable uses such as toilets, urinals, and subsurface irrigation.
- Treatment steps include:
    - Filtration to remove solids.
    - Disinfection using approved methods: chlorine, iodine, or ozone.
        - If chlorine: treated water must have <4 mg/L free chlorine or chloramines.
        - If ozone: treated water must not contain elevated ozone at point of use.
    - Dyeing of treated water to prevent accidental potable use.
- Piping & system separation: Systems must have dedicated non-potable piping to avoid cross-connection with potable water.

Permits, Compliance, & Other Notes:

- Compliance with NSF/ANSI 350 is generally required to obtain a permit for toilet or urinal flushing.
- Systems are classified differently for residential vs commercial, but both require adherence to treatment and safety standards.
- *Reference standards like NSF/ANSI 350 are also cited in other state codes* (Arizona, California).

References:

U.S. Environmental Protection Agency. (n.d.). *Summary of Florida's water-reuse guideline or regulation: Onsite nonpotable water reuse*. EPA. https://www.epa.gov/waterreuse/summary-floridas-water-reuse-guideline-or-regulation-onsite-non-potable-water-reuse

NSF International. (n.d.). *Onsite wastewater and water reuse systems: Water reuse*. NSF. https://www.nsf.org/water-systems/onsite-wastewater-water-reuse-systems/water-reuse

NSF International. (n.d.). *NSF/ANSI 350: On-site residential and commercial water reuse treatment systems — Q&A insert*. https://d2evkimvhatqav.cloudfront.net/documents/ww_nsf_ansi350_qa_insert.pdf

International Code Council. (2017). *Florida Plumbing Code 2017: Chapter 13 — Nonpotable water systems*. UpCodes. https://up.codes/viewer/florida/fl-plumbing-code-2017/chapter/13/nonpotable-water-systems#13

University of Florida IFAS Extension. (n.d.). *Onsite graywater reuse in Florida — AE453*. https://edis.ifas.ufl.edu/publication/ae453

Georgia

Summary: Georgia approves onsite non-potable reuse of graywater, including for toilet and urinal flushing and subsurface irrigation by the Georgia Department of Natural Resources (DNR), 2009. The framework focuses on treatment and safety, rather than system classification by scale or permit type.

- Both residential and commercial sites may reuse treated graywater for toilet and urinal flushing.
- Georgia code does not clearly distinguish between residential and commercial graywater uses.
- Flexibility in treatment methods allows system designers to tailor systems to the quality of graywater used.

Approved End Uses:

- Toilet and urinal flushing.
- Subsurface irrigation.
- Unlike Arizona and Florida, Georgia does not assign residential vs commercial categories or volume-based classes for greywater reuse.

Treatment & Safety Requirements:

- Systems must include:
    - Filtration to remove solids.
    - Disinfection, with methods appropriate for the incoming water quality and end use.
    - Dyeing to prevent accidental potable use.
- Microbial quality standards:
    - Total coliform bacteria: ≤ 500 CFU/100 mL.
    - Fecal coliform bacteria: ≤ 100 CFU/100 mL.
- Treatment method choice depends on:
    - Quality of the incoming graywater.
    - Intended end use (toilet/urinal vs irrigation).
    - Maintenance capacity / preferences of the user.

Piping Standards:

- Systems must have dedicated non-potable piping to prevent cross-connection with potable water.

Permits & Compliance:

- Georgia's guidelines focus on technical standards rather than permitting tiers (like Arizona).
- Compliance with filtration, disinfection, and dyeing standards is sufficient for onsite non-potable reuse.

References:

U.S. Environmental Protection Agency. (2025, August 14). *Summary of Georgia's water-reuse guideline or regulation: Onsite nonpotable water reuse.* EPA. https://www.epa.gov/waterreuse/summary-georgias-water-reuse-guideline-or-regulation-onsite-non-potable-water-reuse EPA

Georgia Environmental Protection Division. (2009). *Georgia Gray Water Recycling Systems Guidelines.*https://epd.georgia.gov/document/publication/georgiagraywaterrecyclingsystemsguidelines2009pdf/downloadEnvironmental Protection Division

International Code Council. (2012). *Georgia amendments to the 2006 International Plumbing Code: Gray-water recycling systems (IPC 2012, Chapter new_13)*. UpCodes. https://up.codes/viewer/georgia/ipc-2012/chapter/new_13/gray-water-recycling-systems#new_13

New Mexico

Summary: New Mexico approves the onsite non-potable reuse of graywater for toilet and urinal flushing, non-spray landscape irrigation, and composting (N.M. Admin. Code § 20.7.3.810). These rules were established by the New Mexico Environment Department (NMED) under the authority of the Environmental Improvement Board (EIB).

- Toilet and urinal flushing with graywater is explicitly permitted.
- Permits are not required for systems ≤ 250 gallons/day that follow specific design and operation rules.
- Treatment is not required, but use must occur within 24 hours to limit bacterial growth.
- NMED (New Mexico Environment Department) is the primary regulatory authority.

Definition of Graywater

Graywater (or "gray water") is defined as untreated household wastewater that has not come into contact with toilet waste, including water from:

- Bathtubs and showers.
- Bathroom sinks.
- Clothes washing machines.
- Laundry tubs.

Graywater excludes wastewater from kitchen sinks, dishwashers, or laundry used for diapers or materials soiled with human excreta (N.M. Admin. Code § 20.7.3.7; N.M. Stat. Ann. § 74-6-2).

Approved Onsite Non-Potable Uses

- Under N.M. Admin. Code § 20.7.3.810, graywater may be reused onsite for:
    - Toilet and urinal flushing.
    - Irrigation of household gardens, lawns, and landscape plants.
    - Composting activities.

Graywater reuse for these applications is allowed at residential, commercial, and institutional sites, provided the systems meet regulatory conditions.

Treatment and Storage Requirements

- Treatment is not required if graywater is used only for the approved purposes and meets all system requirements.
- Graywater must be used within 24 hours of collection to minimize bacterial growth, unless it's treated.
- Storage tanks must be covered to prevent mosquito breeding and reduce human contact.
- Graywater systems must prevent runoff, ponding, or contamination of surface and groundwater.
- Graywater should be distributed below the soil surface or under mulch when used for irrigation.

Permit Requirements

- No permit is required for residential graywater systems that discharge 250 gallons per day or less, as long as all conditions in N.M. Admin. Code § 20.7.3.810 are met.
- Systems exceeding 250 gallons per day, or those involving additional treatment or extended storage, require an NMED discharge permit.

Performance Standards

- New Mexico does not establish numeric water quality standards (e.g., for E. coli or turbidity) for graywater reuse. Instead, the state enforces prescriptive safeguards focusing on:
    - Immediate use or limited storage.

- Avoidance of runoff and human exposure.
- Proper containment and disposal system design.

References:

U.S. Environmental Protection Agency. (n.d.). *Summary of New Mexico's water-reuse guideline or regulation: Onsite non-potable water reuse*. EPA. https://www.epa.gov/waterreuse/summary-new-mexicos-water-reuse-guideline-or-regulation-onsite-non-potable-water-reuse

State of New Mexico. (n.d.). *Title 20 — Environmental Protection, Chapter 7 — Sewage and Solid Waste, Part 3 — On-Site Water Reuse and Graywater Systems* (20.007.0003). https://www.srca.nm.gov/parts/title20/20.007.0003.html

New Mexico Compilation Commission. (n.d.). *NMSA 1978, Chapter 74 — Environmental Improvement, Article 6 — Water Reuse and Graywater*. https://nmonesource.com/nmos/nmsa/en/item/4415/index.do

New Mexico Environment Department. (n.d.). *Graywater Systems – On-site Water Reuse*. https://www.env.nm.gov/septic/graywater/

Oregon

Summary: Oregon authorizes the onsite non-potable reuse of graywater for a wide range of applications, including toilet and urinal flushing, irrigation, vehicle washing, and fire suppression systems, under Oregon Administrative Rules (Or. Admin. R. 340-053). The state's framework is one of the most detailed in this document, and establishes three types of graywater as well as treatment and end-use standards for each type.

- Graywater systems are divided into Type 1, Type 2, and Type 3 systems.
- Toilet and urinal flushing are permitted under Type 3 systems.
- Systems must meet or exceed NSF/ANSI 350 treatment standards (mentioned in "Florida".
- Mentioned regulations apply to both residential and commercial/institutional buildings.
- Oregon's regulations are among the few that extend graywater reuse beyond irrigation to include indoor building applications and fire suppression.
- Graywater permits are issued by the Oregon Department of Environmental Quality (DEQ).

Treatment Standards for each System Type:

- Type 2 and Type 3 systems must either be:
    1. Certified to meet NSF/ANSI Standard 350, or
    2. Demonstrate equivalent treatment performance.
- NSF/ANSI 350 divides systems into two capacity-based categories:
    1. Residential: up to 1,500 gallons per day.
    2. Commercial: over 1,500 gallons per day.
- NSF/ANSI 350 also addresses four influent sources of graywater:
    1. Combined black and gray water.
    2. Graywater only.
    3. Bathing water only.
    4. Laundry water only.

Treatment Level & Approved End Uses for Each Type:
Oregon permits graywater reuse for a wide range of non-potable applications, depending on the graywater type and level of treatment:

- Type 1:
    - **Treatment Level:** No treatment required (stored <24 hrs, no odor).
    - **Approved End Uses:** Subsurface irrigation of gardens, lawns, landscapes, plants, food crops, vegetated roofs, and composting.
- Type 2:
    - **Treatment Level:** Treated to remove solids and pathogens (meets or equivalent to NSF/ANSI 350).
    - **Approved End Uses:** Surface drip irrigation, landscape ponds with non contact, living walls, and greenhouse plants.
- Type 3:
    - **Treatment Level:** High-level treatment meeting or exceeding NSF/ANSI 350 standards.
    - **Approved End Uses:** Sprinkler irrigation, wash water for equipment and vehicles, sidewalk washing, toilet and urinal flushing, floor drain trap priming, and fire suppression systems.

System Design and Operation Standards:

- Systems must prevent human contact and cross-connection with potable water.
- Graywater must be stored and distributed in a way that prevents odor, surfacing, or vector attraction.
- Type 3 systems (used for toilet flushing) require permitting and performance verification by the Oregon Department of Environmental Quality (DEQ).
    - Toilet and urinal flushing falls within type 3.

References:

Oregon Department of Environmental Quality. (n.d.). *Graywater reuse (on-site water reuse and graywater program)*. https://www.oregon.gov/deq/wq/programs/Pages/Water-Reuse-Graywater.aspx

U.S. Environmental Protection Agency. (n.d.). *Summary of Oregon's water-reuse guideline or regulation: Onsite nonpotable water reuse.* EPA. https://www.epa.gov/waterreuse/summary-oregons-water-reuse-guideline-or-regulation-onsite-non-potable-water-reuse

Oregon Secretary of State. (n.d.). *Oregon Administrative Rules, Division 1470 — Water Quality; Water Reuse and Graywater Systems.* https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1470

Texas

Summary: Texas authorizes the onsite non-potable reuse of graywater and alternative onsite water for a wide variety of residential, commercial, industrial, institutional, and agricultural applications. Permitted uses include toilet and urinal flushing, irrigation, dust control, process water, and foundation stabilization. The framework is defined under 30 Texas Administrative Code (TAC) Chapter 210, Subchapter F (§210.81–85) and regulated by the Texas Commission on Environmental Quality (TCEQ).

- Texas explicitly allows graywater reuse for toilet and urinal flushing in residential and commercial/institutional buildings.
- Indoor reuse requires treatment for microbial safety.
- TCEQ (Texas Commission of Environmental Quality) oversees permitting and compliance for larger or more complex systems.
- Systems under 400 gallons per day (residential irrigation only) are permit-exempt, but indoor uses such as toilet flushing must be authorized.

Definition of Graywater:

- Under §210.82, *graywater* is defined as: "Wastewater from showers, bathtubs, handwashing lavatories, sinks that are used for disposal of household or domestic products, sinks not used for food preparation or disposal, and clothes-washing machines."
- Graywater does not include wastewater from:
    - Toilets or urinals.
    - Kitchen sinks used for food preparation or disposal.
    - Dishwashers.

Permitting System:

- Permitting Rules:
    - Residential graywater systems with a flow ≤400 gallons per day used for subsurface irrigation do not require a permit, provided they comply with local plumbing codes and TCEQ's design criteria.
    - Larger systems (>400 gallons per day) or systems intended for indoor uses (such as toilet flushing) require TCEQ authorization under Chapter 210.
    - Local jurisdictions may impose additional permitting, but they operate under TCEQ's statewide framework.
- Regulatory Agency for Permits:
    - Texas Commission on Environmental Quality (TCEQ).

Approved End Uses:

- **Residential reuse:** Foundation stabilization, gardening and landscaping, compositing, toilet and urinal flushing.
- **Commercial, industrial, agricultural, and institutional reuse:** Water processing, landscape irrigation and maintenance, dust control, toilet and urinal flushing.

Treatment and Performance Standards:

- Performance Standards: Treatment systems must ensure removal or reduction of:
    - E. coli.
    - Enterococci.
    - Biological Oxygen Demand (BOD).
    - Total Suspended Solids (TSS).
    - Turbidity.
- System Design Requirements:
    - Systems must prevent cross-connections with potable water.
    - Graywater must be filtered and disinfected when used indoors (e.g., for toilet flushing).
    - Storage must prevent odor, surfacing, and vector attraction.

References:

Texas Commission on Environmental Quality. (n.d.). *Use of graywater systems (30 Tex. Admin. Code §§ 210.81–210.85)*. https://texas-sos.appianportalsgov.com/rules-and-meetings?chapter=210&interface=VIEW_TAC&part=1&subchapter=F&title=30

U.S. Environmental Protection Agency. (2025, May 1). *Summary of Texas's water-reuse guideline or regulation: Onsite nonpotable water reuse.* EPA.

https://www.epa.gov/waterreuse/summary-texas-water-reuse-guideline-or-regulation-onsite-non-potable-water-reuse

Texas Commission on Environmental Quality. (n.d.). *RG-539: Graywater and alternative onsite water reuse guidance.*https://www.tceq.texas.gov/downloads/assistance/publications/rg-539.pdf

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Conclusion

Across the examined states, graywater reuse regulations vary widely in structure, complexity, and treatment requirements, yet all seven mentioned states explicitly permit graywater use for toilet and urinal flushing.

States such as Arizona, Oregon, and Texas use tiered or capacity-based permitting systems, while Georgia and New Mexico rely more heavily on prescriptive standards and limited treatment requirements.

California and Florida emphasize compliance with NSF/ANSI 350 in the absence of local treatment rules.

Collectively, these states' frameworks demonstrate that safe, regulated indoor graywater reuse is achievable through a combination of treatment standards, plumbing safeguards, and clear permitted-use categories. This offers multiple potential models for improving Illinois’s current regulatory approach to graywater reuse.