



COMMONWEALTH OF VIRGINIA

Karen Remley, MD, MBA, FAAP
State Health Commissioner

Department of Health
P O BOX 2448
RICHMOND, VA 23218

TTY 7-1-1 OR
1-800-828-1120

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Ms. Sally Thomas, Chair
The Rivanna River Basin Commission
490 Westfield Road
Charlottesville, Virginia 22901

Dear Ms. Thomas:

Thank you for your recent letter to Governor Kaine regarding the Virginia Department of Health's (VDH) development of rainwater guidelines. In accordance with § 32.1-248.2 of the Code of Virginia, VDH developed the attached document, titled Gray Water Guidelines. The guidelines address the use of gray water and rainwater to ensure that these systems are properly designed and constructed to provide a safe water source. Rainwater collection through cisterns is addressed under 12 VAC 5-610-1170 of the Sewage Handling and Disposal Regulations under VDH.

As one of our most precious natural resources, the beneficial use of water is critical to public health and welfare across the Commonwealth. As you point out, this is a multi-faceted and emerging issue. In Virginia, the regulation of rainwater currently extends beyond the authority of one agency. Based on facility type, project scope, and proposed use, authority over a rainwater harvesting system may lie with several agencies.

The Department of Housing and Community Development and local building officials regulate the use of gray water and rainwater systems for commercial and residential properties through the building code. VDH's Office of Drinking Water regulates systems meeting the definition of a public waterworks. VDH's Office of Environmental Health regulates those systems using onsite (private) gray water and rainwater. The Department of Environmental Quality regulates certain activities depending on the type of reuse and discharge. The Department of Conservation and Recreation is also developing additional guidance and regulations regarding the rainwater reuse.

A cooperative and collaborative approach is needed to clarify the questions surrounding the use of rainwater and rainwater harvesting systems. Therefore, I encourage your Commission to collaborate with all of the above state agencies to ensure that a complete and comprehensive discussion takes place on this very important topic. Thank you again for your interest. For additional assistance, please contact Mr. Dwayne Roadcap at VDH at (804) 864-7462.

Sincerely,

Karen Remley, MD, MBA, FAAP
State Health Commissioner

Enclosure

cc: The Honorable Marilyn B. Tavenner
Secretary of Health and Human Resources

Gray Water Guidelines

General

Gray water is untreated wastewater collected from certain plumbing fixtures and drains. Gray water is sewage, but is not highly contaminated with toxic levels of chemicals, organic matter, suspended solids and microorganisms that are potentially pathogenic. Gray water includes wastewater collected from bath tubs, showers, lavatory fixtures, clothes washing machines, and laundry tubs. In addition, rainwater may be collected to supplement gray water flows. Gray water does not include industrial waste or wastewater passing from toilets, urinals, kitchen sinks, dishwashers or laundry water exposed to soiled diapers.

Gray water is typically collected and stored for irrigation uses through a subsurface piping system. However, gray water may be treated through an approved process and used for either above ground irrigation or toilet flushing purposes. The plumbing fixtures, valves, storage container, pumps, irrigation piping, etc., are referred to as a gray water system.

Permit

A permit issued under the authority of the State Health Commissioner is to be obtained prior to installation and use of a gray water system. The plumbing fixtures used in a gray water system must comply with the requirements of the statewide building code. The gray water system must also comply with applicable state and local regulations and policies implemented through the Virginia Department of Health. A preliminary meeting with local and state health department staff to discuss the proposed gray water system is desirable prior to submission of the permit application.

A complete permit application is to be submitted to the local health department for evaluation and approval prior to installation of a gray water system. The permit application is to include a transmittal letter identifying: the applicant, their means of ownership of the gray water system, and the location of the proposed gray water system. A suitable diagram of the property boundaries, location of residences, buildings, water and sewage utilities, paved areas and irrigation areas that are connected to or within 100 feet of the gray water system is to be submitted with the application. Some construction details such as vent piping, traps, valving, overflows, pump specifications, filters, chemical addition, etc., may be required. Complete information necessary to evaluate site soils, their wastewater adsorption capacity, and water table location, would be required for irrigation systems.

The permit application is to specify the capacity of the gray water system in terms of: estimated flows, storage provided, irrigation area and layout, pump capacity, overflow rates, filtration rates, chemical dosing rates, etc.

Gray water collected from commercial, industrial, or institutional systems is to be characterized as to volume and content based on appropriate records or approved sampling and testing results obtained by the gray water system owner.

Installation

All necessary local permits (Health and Building Code) are to be issued prior to initiating installation of a gray water system.

Components of a gray water system designed to ensure proper treatment and disinfection as required for proposed uses are to be designed and certified by an appropriately licensed professional consultant or have been certified as to treatment performance by a nationally recognized testing authority such as the National Sanitation Foundation (NSF).

Storage tanks are to be installed in a manner to prevent leakage or spillage of gray water and are to be provided with proper traps and venting and provided with an overflow to an approved sewage collection system, or sewage disposal system. Installation of all gray water system components must comply with the issued permit. The gray water system is not to be connected to any potable water system without an approved air gap to prevent any possible backflow. A rainwater collection piping system is to include an approved diversion valve to limit the volume discharge to the storage tank. The constructed gray water system is to be inspected by local and State Health Department staff prior to operation.

During an inspection of construction, certain components on the gray water system are to be tested to ensure proper operation. Exposed gray water system components are to be permanently coded and marked to indicate that the gray water is unsuitable for drinking or personal contact. The gray water system installation is to comply with all buffer zones and set-backs required by existing state and local regulations and ordinances.

Operation

During operation, no untreated or undisinfected gray water is to either reach the ground surface, or be used for toilet flushing. A set of acceptable operation and maintenance instructions is to be developed and remain available to the system owner. Gray water used for toilet flushing is to be dyed or colored by approved methods. The gray water system capacity is to be sufficient to use the generated daily flow. The volume of any rainwater diverted to the gray water system is to be controlled so as not to exceed the established permitted capacity.

12VAC5-610-1170. Cisterns.

A. General. Cisterns shall be considered only when no other source of potable water is feasible.

B. Location and protection. The following precautions should be taken with regard to the location and protection of cisterns:

1. The distance from other sources of pollution shall be the same as for subsurface soil absorption systems contained in Table 4.4 and 12VAC5-610-810 A; and
2. Cisterns shall be located in a manner that will not subject them to flooding.

C. Construction.

1. The cistern shall be constructed of watertight, durable, structurally sound material, with a smooth interior surface.
 2. When the cistern is filled by rainfall provisions shall be made to bypass, divert or otherwise remove the water that falls at the beginning of a rain.
 3. Cisterns shall be accessible for cleaning.
 4. Where a manhole cover is used, it shall be watertight and the manhole shall be at least 24 inches in diameter.
 5. Where another type of cover is used, it shall be a solid, watertight cover which overlaps the framed opening and extends vertically down around the frame at least two inches.
 6. The top of the cover frame shall be at least 12 inches above the surrounding ground surface.
 7. All openings into the cistern shall be screened in order to prevent the entrance of insects, rodents and other animals and pollutants.
 8. When screens and filters are utilized for filtering roof runoff, they shall be accessible for regular cleaning.
 9. Drain and overflow pipes shall not be connected directly to any sewer, soil pipe, house drain or other waste pipe. An air-gap shall be provided on all drains and overflow pipes. Drains and overflow pipes shall be suitably screened.
 10. Asphaltic roofing material or painted roofs should not be utilized in conjunction with cisterns because of the potential leaching of toxic materials.
- D. Potability. Cisterns cannot be relied upon to provide potable water without adequate treatment. Adequate treatment consists of removal of solids washed from the roof and continuous disinfection.

Statutory Authority

§§32.1-12 and 32.1-164 of the Code of Virginia.

Historical Notes

Derived from VR355-34-02 §4.52, eff. February 5, 1986; amended, eff. May 11, 1988.