Residential Graywater:

Background on Public Health and Environmental Issues

A Presentation for Maryland's Graywater Advisory Committee

September 18, 2019

Maryland Department of the Environment

Presentation Overview

- Managing Public Health Risks
- Managing Environmental Damage Risks
- Preventing Nuisance Issues
- Protecting Graywater Systems
- Treatment & Water Quality

Reduce Health Risks

- Graywater can contain bacteria & viruses
- Stored graywater can grow bacteria
- Graywater can contain chemicals

- Prevent Human Contact with Graywater
  1. Use subsurface drip systems for outdoor irrigation
  2. Avoid Ponding Water
  3. Keep graywater on the property where it was generated
  4. Do not irrigate food crops
  5. Ensure Proper Plumbing, E.g.,
     - Prevent uncontrolled over-flows via proper plumbing
     - Prevent cross-connection with potable water

Reduce Health Risks

Drip Irrigation Under Mulch

Subsurface Lawn Drip Irrigation

Reduce Health Risks

Avoid Ponding Water

Avoid Water Leaving the Property

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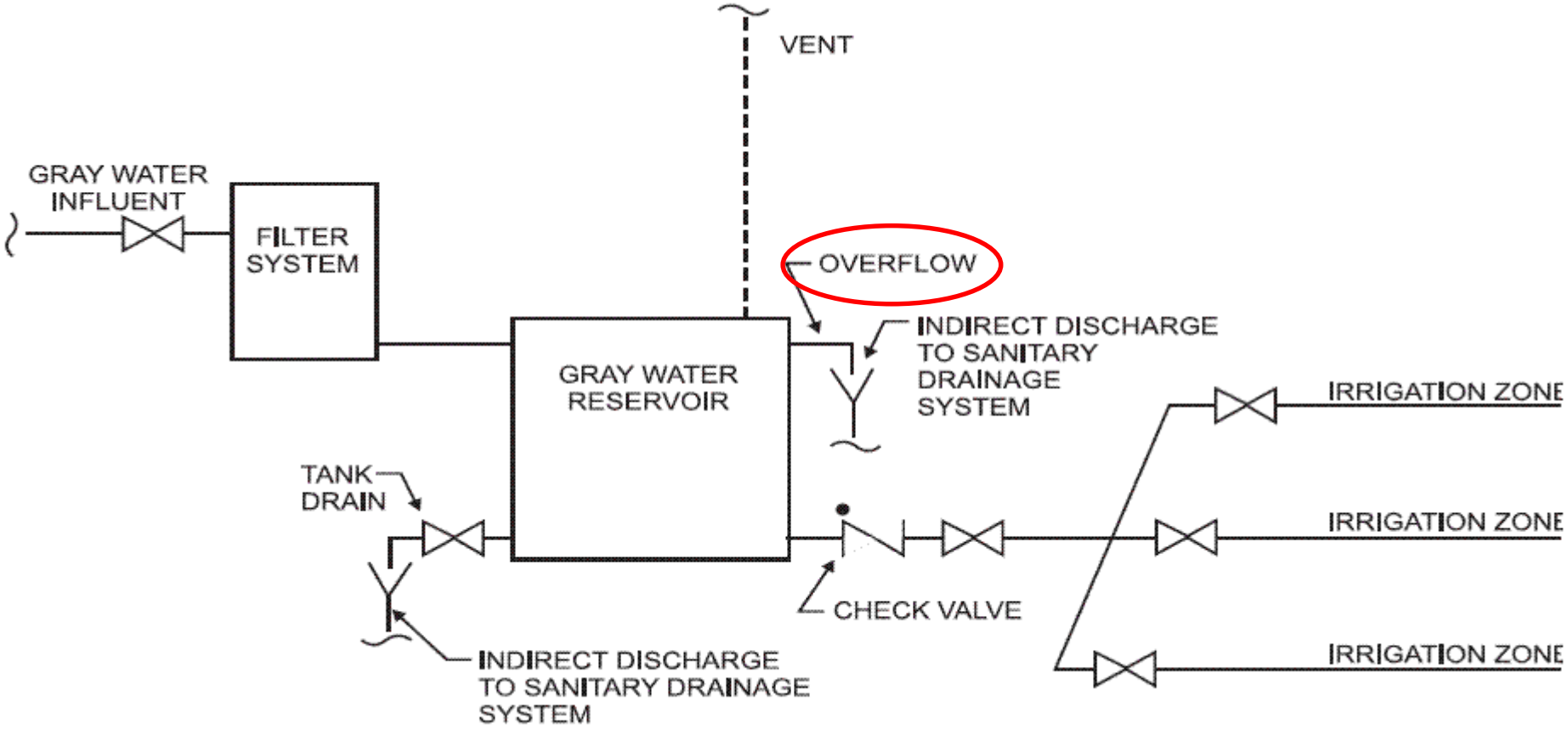
Reduce Health Risks

Prevent Over-flows:



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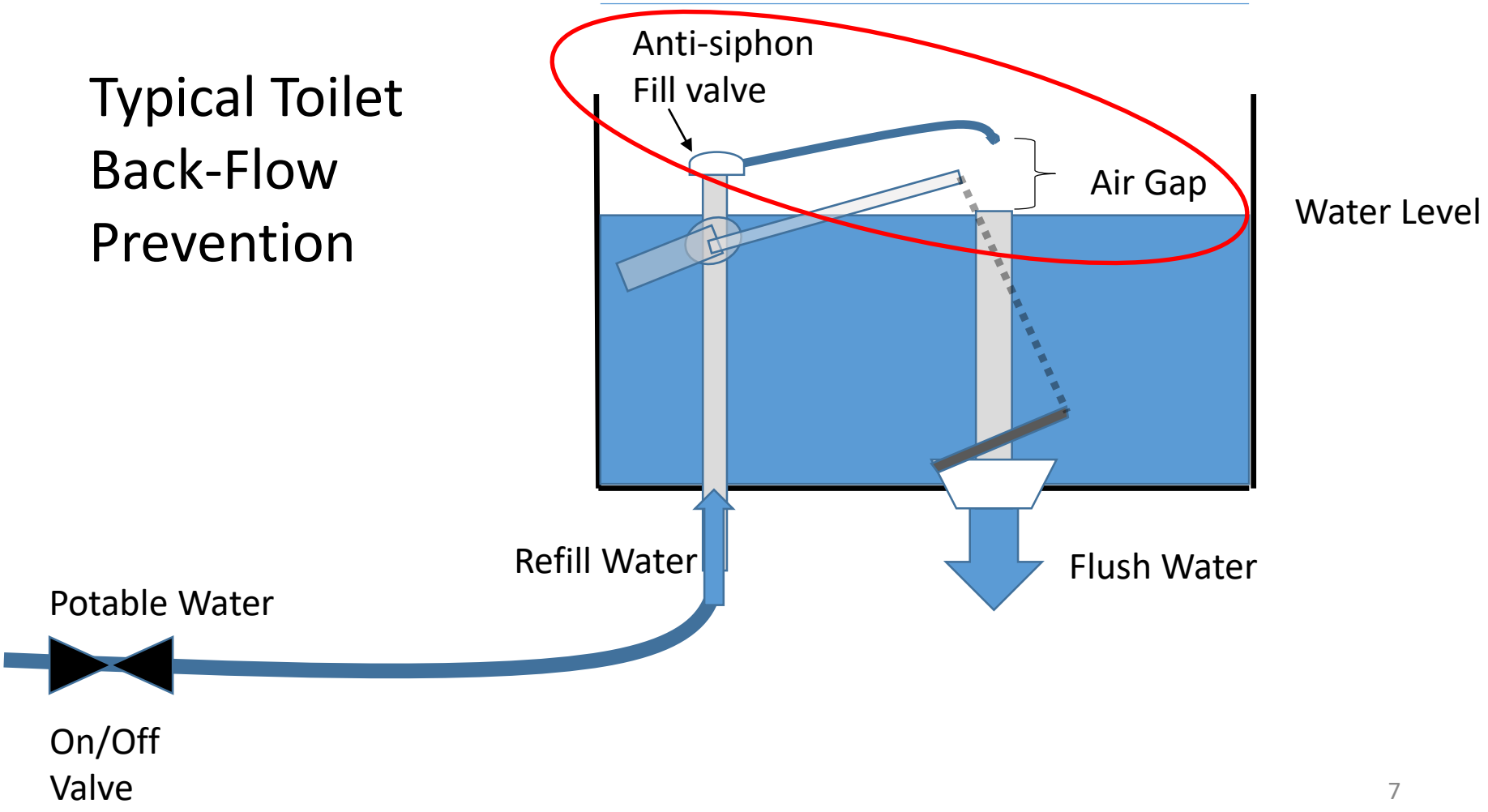
Reduce Health Risks

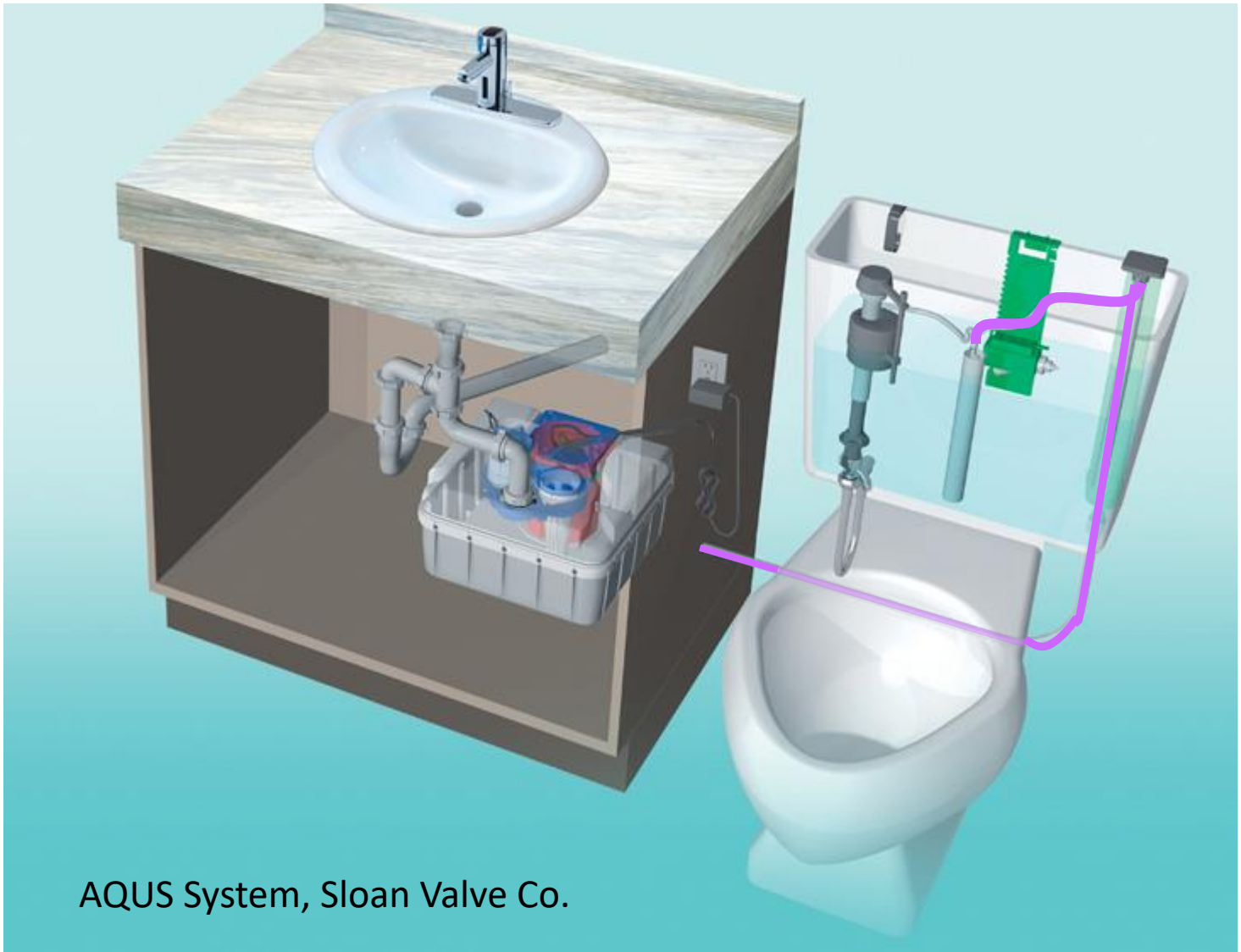
Prevent cross-connections with potable water supplies

Typical Toilet Back-Flow Prevention



Reduce Health Risks

Prevent cross-connections with potable water supplies

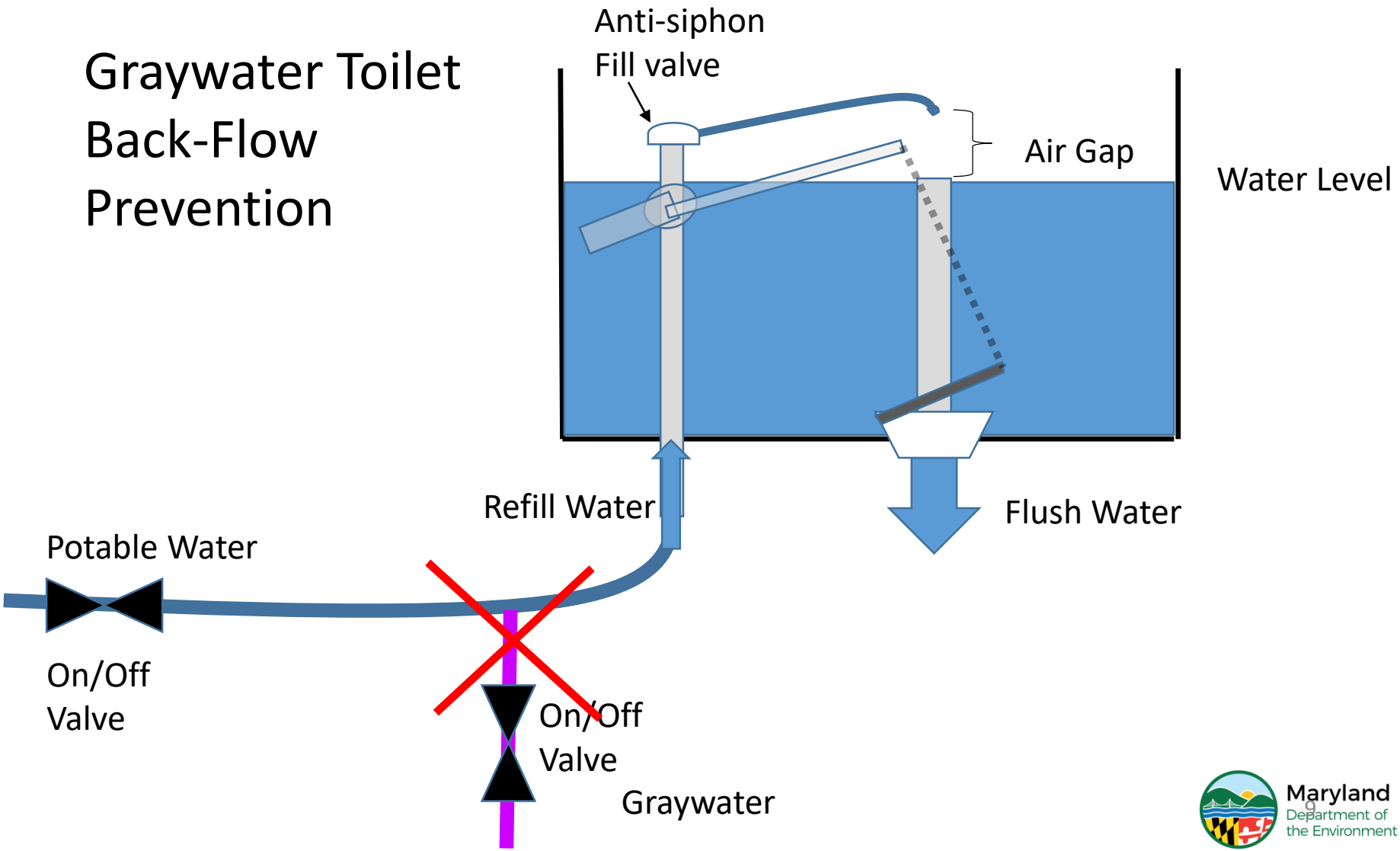


AQUS System, Sloan Valve Co.

Reduce Health Risks

Prevent Cross Connections with Potable Water Supplies

Graywater Toilet Back-Flow Prevention



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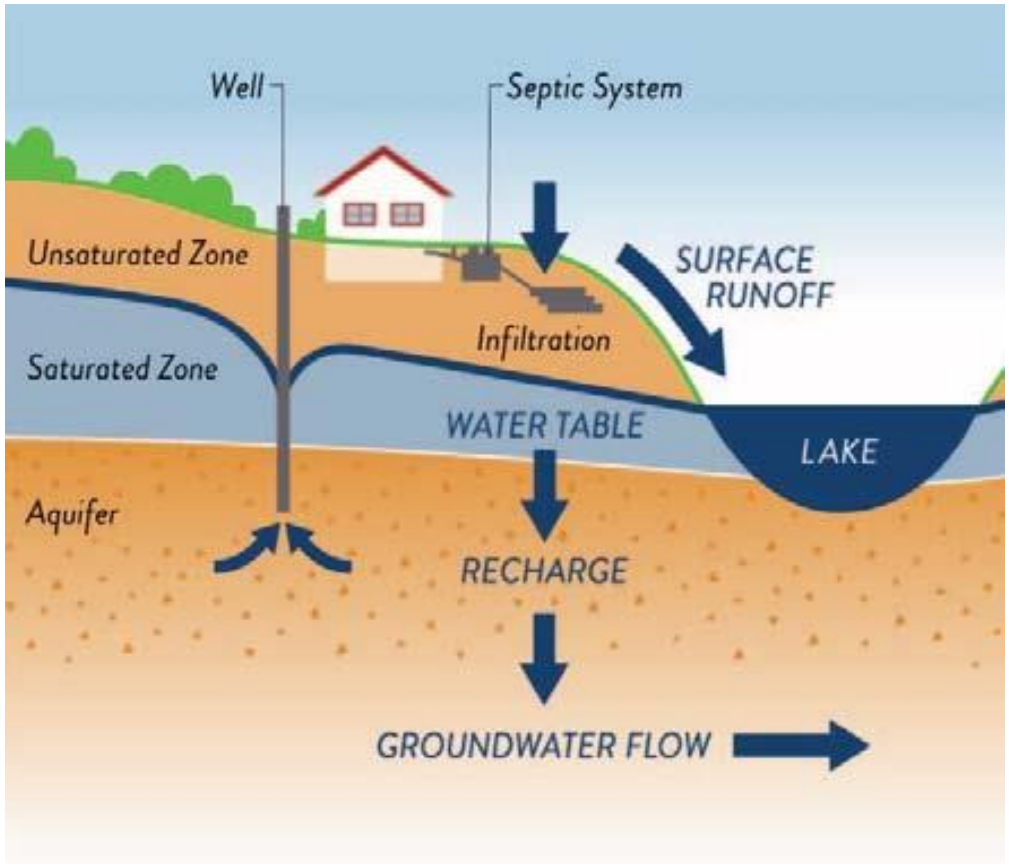
Reduce Environmental Risks

- Graywater can Contain Chemicals
- Stored Graywater can Undergo Chemical Transformations

Protect Soil Health

Protect Plant Health

Reduce Environmental Risks



Protect Groundwater

Protect Surface Water

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Protect the Graywater System

- Prevent Untimely Maintenance Problems

Avoid Subsurface Drip System Clogging

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Storage, Treatment and Water Quality

- Coarse Screening, e.g., Lint.
- Treatment is necessary for storage of more than 24-hours (maintain the oxygen to avoid fetid water)
- Additional treatment is typically required for use in toilet flushing. Typical Quality Parameters:
  - 5-day biological oxygen demand (BOD)
  - Total suspended solids
  - Total coliforms

Building Maryland's Water Reuse Future

Choose the PURPLE PIPE

- Check out MDE's Reuse Website & Share the Link http://bit.ly/H20reuseMDE
- Talk to colleagues about water reuse
- Consider water reuse as a tool & possible way to reduce or even avoid permit burdens.

Remember, it's all *ONE* water!

Thank You

Questions? Comments?