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## The Basics




**Private water supplies and onsite sewage systems:**

1. **How do we regulate? Why do we care?**
2. **What is the regulatory program?**
3. **Who is regulated (stakeholders)?**
4. **What is the role of DEQ and VDH?**
5. **How do we solve problems?**

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## The “Not-So” Basics (subtleties, politics, philosophy, social responsibilities, etc.)

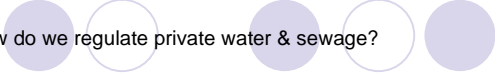


**Private water supplies and onsite sewage systems:**

1. **Planning and zoning tool**  
(Where to Develop?)
2. **Building Permit Program**  
(What can develop?)
3. **Mass Sewage Disposal Systems**
4. **“Cutting-edge” Technology**
5. **Money & Property Rights**

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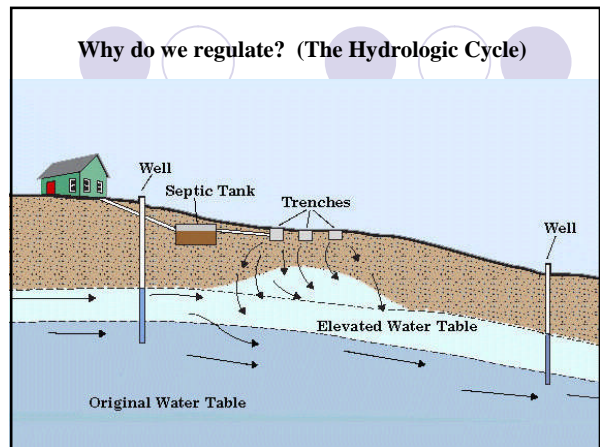
## How do we regulate private water & sewage?

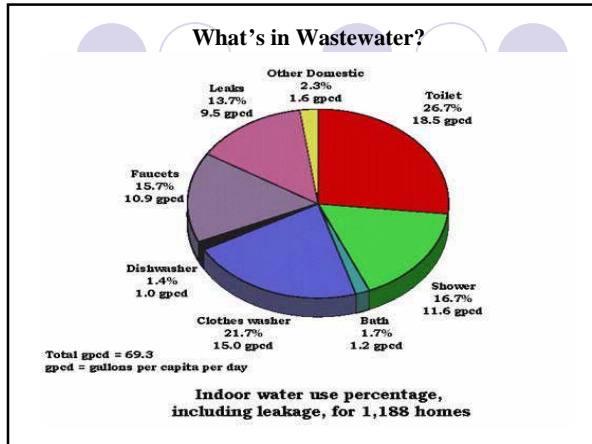


- Title 32.1-164 of the *Code of Virginia*
- The Private Well Regulations (1990)
- The Sewage Handling and Disposal Regulations (1972, 1982, 1989, 2000)
- The Discharge Regulations (1992)
- The AOSE Regulations
- Guidance, Memoranda, & Policy
- The Indemnification Fund

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## Who are the stakeholders?

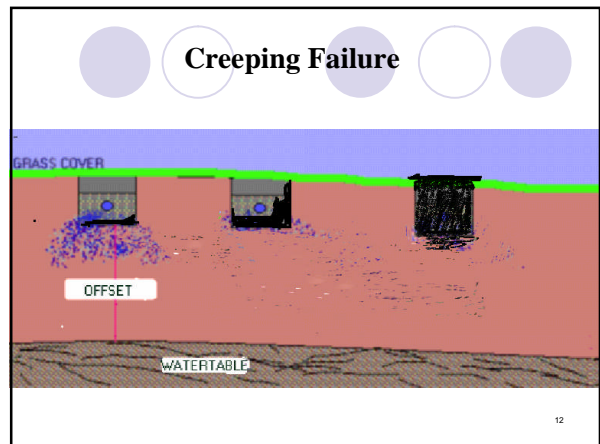
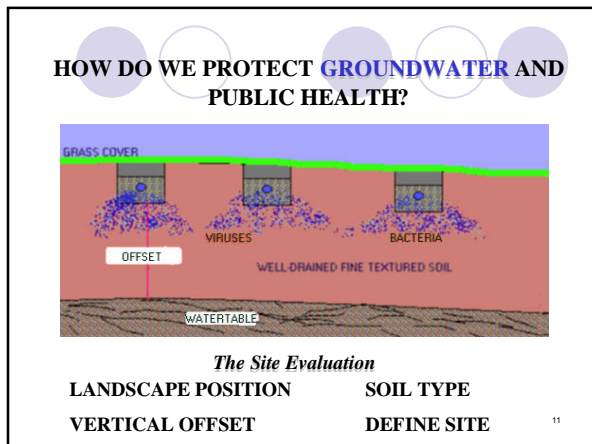





- ### What's in Wastewater?
1. Water (99 Percent)
  2. Organics & Nutrients
  3. Fats, Oils, and Grease (FOG)
  4. Inorganics and other solids (Hair, cloth)
  5. Virus and Bacteria
  6. Heavy Metals
  7. Ammonium, Phosphates
- 

- ### Why do we care?
- Groundwater may be affected by.....
- ## VIRUSES
1. Over 100 enteric viruses excreted in the feces of man.
  2. Filtration by the soil is minimal because of their small size (< 250 nm).
  3. Can initiate significant waterborne disease.

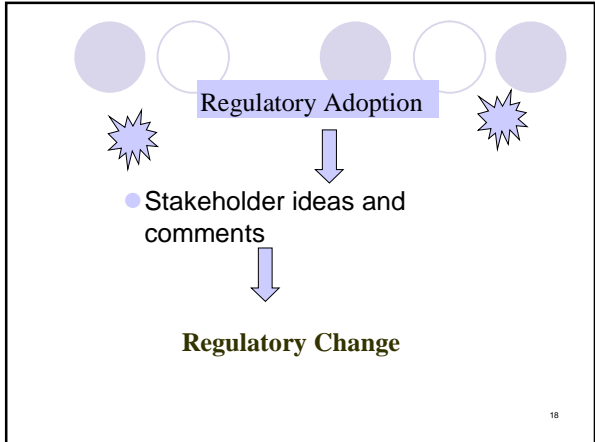
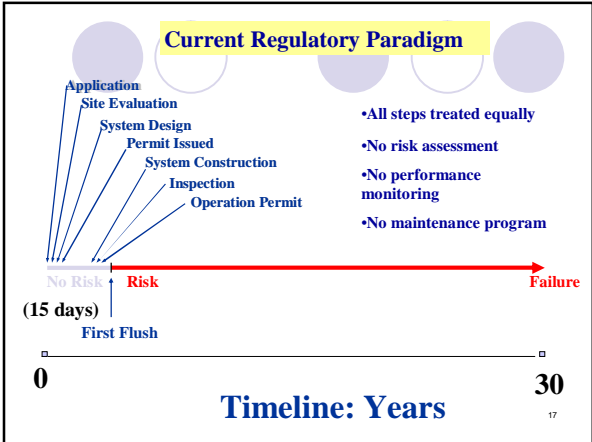
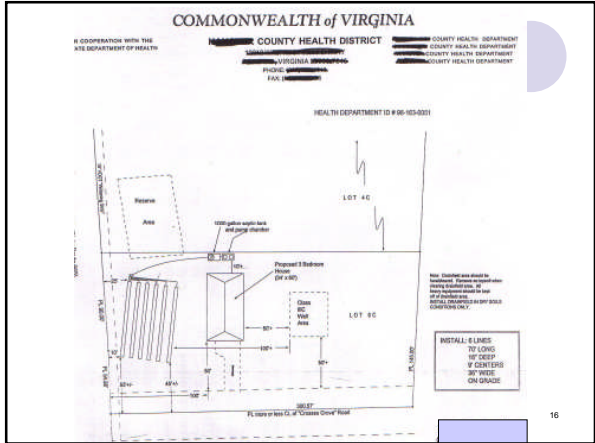
- ### Groundwater may be affected by.....
- ## BACTERIA
1. Waterborne outbreaks from Shigella, Salmonella, Campylobacter, E. coli, and others.
  2. Typical concentration of  $4.2 \times 10^7$  organisms in STE
  3. Adsorption and filtration reduce survival rates (well-drained fine medium textured soils helps greatly).
  4. Movement in coarse textures or high water tables may be significant.





Well #	Horizon	Depth (feet)	Description of color, texture, etc.	Texture Group
1	A	0-12	Yellowish brown to Grayish brown, loamy sand.	I
	B	12-64	Yellowish brown to Olive brown, mottled with Gray and Yellowish red, silty clay loam.	III
	C	64-120	Strong brown loamy sand to sand with lenses of Gray and Olive brown sand to loamy sand. No free water encountered, but evidence of water bearing through Gray and Olive brown lenses.	I
2	A	0-14	Yellowish brown to Grayish brown, loamy sand.	I
	B	14-108	Yellowish brown to Olive brown, mottled with Yellowish red and Gray, heavy clay loam to silty clay loam.	III
	C	108-142	Strong brown, loamy sand to sand.	I
	C	142-180	Gray and Olive brown, loamy sand to sand, with many clean sand grains. Saturatd at 14 feet.	I
3	A	0-18	Yellowish brown, loamy sand to sandy loam.	I-II
	B	18-36	Strong brown, heavy sandy clay loam to light clay loam.	II-III
	B	36-50	Yellowish brown, mottled with Yellowish red, Strong brown, and Gray, clay loam.	III
4	A	0-18	Yellowish brown, loamy sand to sandy loam.	I-II
	B	18-42	Strong brown mottled with few Yellowish brown, heavy sandy clay loam.	II
	B	42-60	Mottled Yellowish brown, Strong brown, Yellowish red, and Gray, heavy sandy clay loam to light clay loam.	II-III
5	A	0-14	Yellowish brown, sandy loam.	II
	B	14-30	Strong brown, sandy clay loam.	II
	B	30-48	Strong brown, mottled with Yellowish brown, sandy clay loam to heavy sandy clay loam.	II
6	A	0-16	Yellowish brown, sandy loam.	II
	B	16-31	Strong brown, heavy sandy clay loam to light clay loam.	II-III
	B	31-48	Strong brown, mottled with Yellowish red and Gray, clay loam.	III

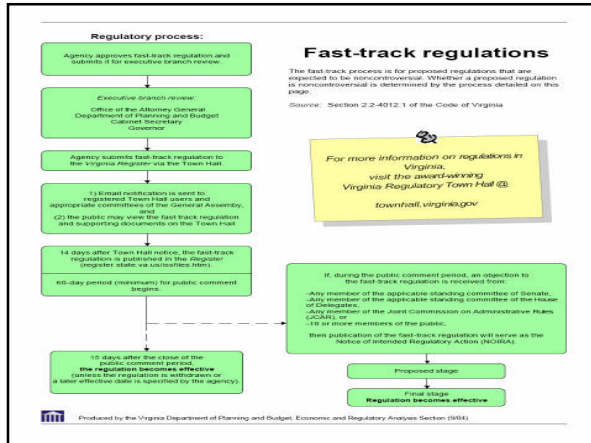
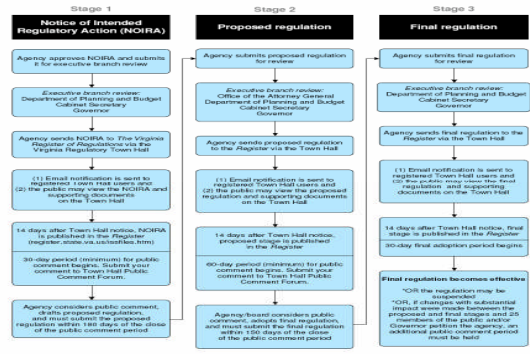
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# The Stakeholder Input Process

- Virginia Association of Professional Engineers
- Virginia Association of Professional Soil Scientists
- Virginia Homebuilders Association
- Virginia Association of AOSes
- Virginia Onsite Wastewater Recycling Association
- Virginia Environmental Health Association
- Virginia Department of Health Employees
- Virginia Academic Community
- Virginia Septic Contractor Community

## Standard regulatory process: Detailed outline



- VDH
  - Public health
  - Due diligence
  - Regulate private, onsite
  - Public Water Supplies
- DEQ
  - Primacy
  - Spills
  - State Water Control Bd.
  - Large discharges

- [Air Check Virginia](#)
- [Air Quality](#)
- [Brownfield/Land Renewal](#)
- [Chesapeake Bay Program](#)
- [Citizen Monitoring](#)
- [Clean Marina Program](#)
- [Computer & Electronics](#)
- [Recycling](#)
- [Construction Assistance](#)
- [Environmental Education](#)
- [Enforcement](#)
- [Environmental Excellence](#)
- [Environmental Impact Review](#)
- [Federal Consistency](#)
- [Environmental Management](#)
- [eProcurement](#)
- [Federal Facilities](#)
- [Ground Water Protection](#)
- [Innovative Technology](#)
- [ISO 14001](#)
- [Oyster Heritage Program](#)
- [Ozone and Particle Pollution Monitoring](#)
- [Petroleum Programs](#)
- [Pollution Prevention](#)
- [Power Plants](#)
- [Recycling & Litter Prevention](#)
- [SARA Title III](#)
- [Small Business Assistance](#)
- [Superfund](#)
- [Total Maximum Daily Loads](#)
- [Toxics Release Inventory](#)
- [Virginia Coastal Program](#)
- [Vehicle Emissions Inspections](#)
- [Virginia Naturally](#)
- [Voluntary Remediation](#)
- [Waste Management](#)
- [Waste Tires](#)
- [Wastewater Engineering](#)
- [Wastewater Treatment](#)
- [Water Quality](#)
- [Water Resource Management](#)

- Drinking Water**
    - Office of Drinking Water
      - Source Water Assessment Program
      - Very Small Water Systems
      - Drinking Water State Revolving Fund Program
  - Epidemiology**
    - Epidemiology Program
    - Immunizations
    - Waterborne Hazards Control
    - Tuberculosis Control
    - STD/AIDS
      - AIDS Drug Assistance Program
      - Chlamydia Prevention Program
      - HIV Prevention Program
      - Perinatal Hepatitis B Prevention
      - Virginia Vaccines for Children Program
    - Health Hazards Control
      - Radiological Health Program
      - Toxic Substances
    - Bedding and Upholstery Inspection
  - Emergency**
    - Emergency Preparedness and Response
    - Emergency Medical Services
- VDH

VDH

**Environmental Health**

[Office of Environmental Health](#)  
[Food and General Environmental Services](#)  
[Onsite Sewage and Water Services](#)  
[Shellfish Sanitation](#)  
[Wastewater Engineering Marina Program](#)  
[Restaurant Inspections](#)

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**Solving Problems**

- Hearings, appeals
- Research – Va. Tech
- Education – public
- Training – staff
- Assessment – need more
- Surveillance “

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**Questions on “The Basics”**

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