

## WHY IS THE NAVY SAMPLING FOR PFCs?

### NEW NAVY PERFLUORINATED COMPOUNDS (PFC) POLICY

- ◆ September 2015—Policy required drinking water sampling of PFCs (most commonly found in fire-fighting foam) on some navy bases

### FENTRESS SAMPLING

- ◆ December 2015—Sampling was conducted
  - ◇ Drinking Water
  - ◇ Groundwater
- ◆ January 2016 Results
  - ◇ Drinking water was above the US Environmental Protection Agency Provisional Health Advisory levels
  - ◇ Some groundwater monitoring wells were above Provisional Health Advisory

Parameter	Maximum Concentration Detected in Fentress Groundwater	EPA PHA Level	Exceeds EPA PHA Level	Unit
Perfluorooctane Sulfonate (PFOS)	11	0.2	Yes	ppb*
Perfluorooctanoic Acid (PFOA)	0.88	0.4	Yes	ppb*

\*1 part per billion (ppb) = 1 microgram per liter (µg/L)

EPA = Environmental Protection Agency

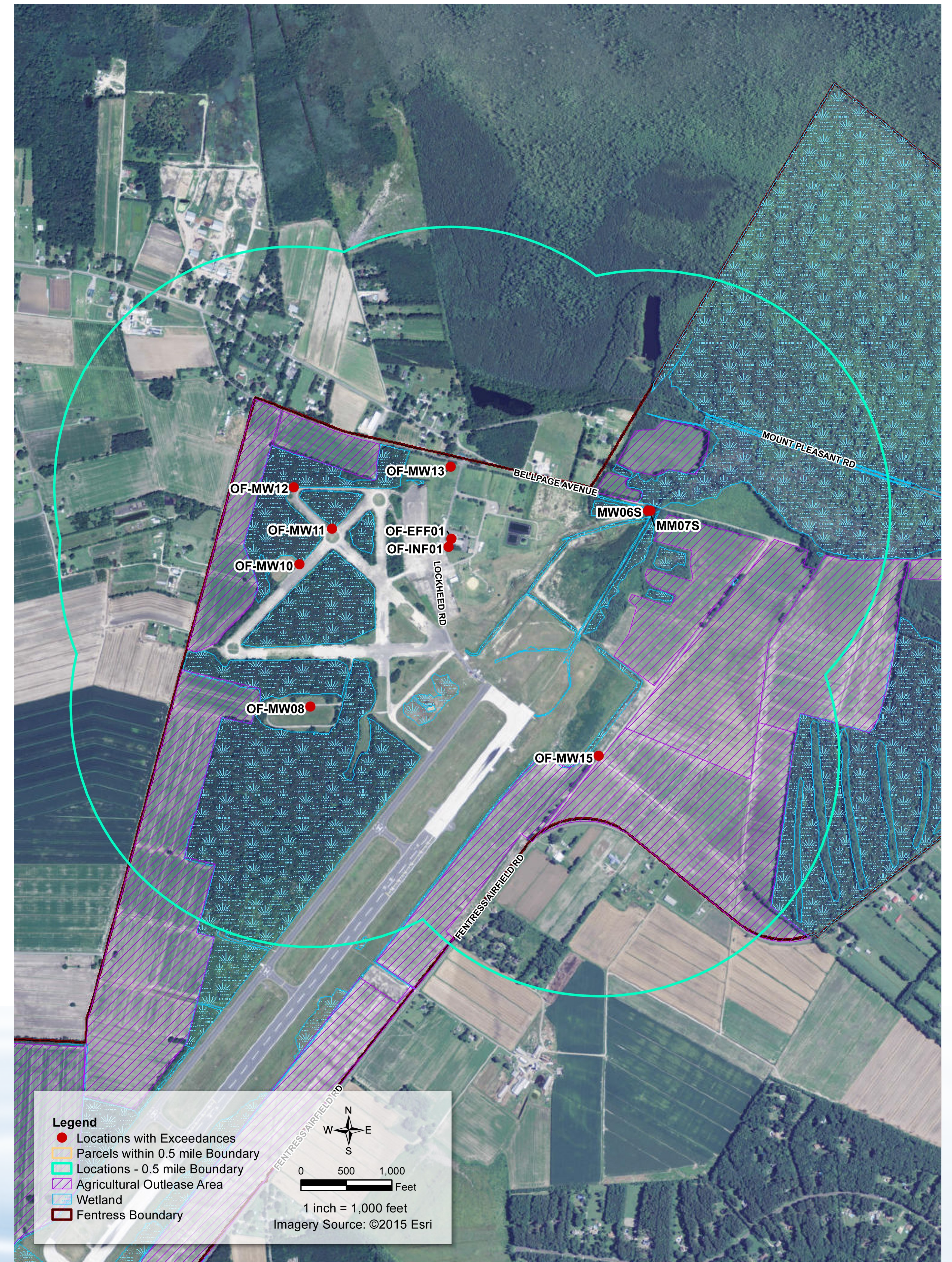
PHA = Provisional Health Advisory

- ◆ February 2016—Navy proposes to sample off-base drinking water in designated area

For more Information:

[www.cnmc.navy.mil/FentressInfo](http://www.cnmc.navy.mil/FentressInfo)

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## NAVAL AUXILIARY LANDING FIELD (NALF) FENTRESS DRINKING WATER INVESTIGATION

### SAMPLING PROCESS

- ◆ Request appointment of off-base drinking water well owner (30 minutes)
- ◆ Collect information of drinking water well location, drinking water well construction, and any treatment of groundwater
- ◆ Cold water from faucet (typically kitchen sink) runs for 10-15 minutes
- ◆ Water information (e.g., pH & temperature) measured & recorded by field team
- ◆ Sample is pulled directly from the faucet into approved laboratory bottle by trained personnel
- ◆ A quality control sample is collected within the same room, by pouring laboratory provided perfluorinated compounds (PFC)-free water into a sample container
- ◆ Sample shipped overnight to an Environmental Protection Agency (EPA)-approved laboratory
- ◆ All data is validated per EPA recommendations



Image by Martin Walls

### SAMPLING TIMELINE



2016

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## NEXT STEPS

### ACTIONS BASED ON RESULTS

#### SAMPLE RESULTS AT OR GREATER THAN US ENVIRONMENTAL PROTECTION AGENCY (EPA) PROVISIONAL HEALTH ADVISORY

- ◆ Alternate drinking water source (e.g. bottled water) provided at no cost to the resident, until a long-term solution is implemented
  - ◇ Navy to provide water dispensers and 5-gallon jugs
  - ◇ Estimated 30 gallons per week (based on four person household)
- ◆ Confirmation sampling as necessary

#### SAMPLE RESULTS GREATER THAN 25% OF THE EPA PROVISIONAL HEALTH ADVISORY

- ◆ The Navy will conduct quarterly monitoring of drinking water for one year
- ◆ If any samples exceed the US Environmental Protection Agency (EPA) Provisional Health Advisory, alternate drinking water will be provided, as explained above

#### SAMPLE RESULTS LESS THAN 25% OF THE EPA PROVISIONAL HEALTH ADVISORY

- ◆ Additional samples may be collected based on the ongoing groundwater investigation

### FOLLOW-ON ACTIONS

- ◆ Conduct additional drinking water sampling as necessary
- ◆ Install and sample groundwater monitoring wells to evaluate off-site migration

### LONG-TERM GROUNDWATER SOLUTIONS

- ◆ Restoration of the groundwater will be addressed by the Navy Environmental Cleanup Program
- ◆ Partnering with the City of Chesapeake, Virginia Department of Environmental Quality, and US Environmental Protection Agency

Action	PFOA Concentration	PFOS Concentration
Provide alternate water	At/above Provisional Health Advisory level (0.4 ppb*)	At/above Provisional Health Advisory level (0.2 ppb*)
Follow-up sampling, initially quarterly	0.1 ppb* to 0.4 ppb*	0.05 ug/L to 0.2 ppb*
No further action at this time	Below 0.1 ppb*	Below 0.05 ppb*

\*1 part per billion (ppb) = 1 microgram per liter (µg/L)

## RESULTS AVAILABLE MARCH 2016

- ◆ *Private Notification Letters*
- ◆ *Open House Meetings*

**AVAILABLE NOW!**  
**Free Water Fill Station**  
1564 Mount Pleasant Road  
across the street from Butts Road Intermediate School

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NAVY PFC TESTING AND RESPONSE GOES BEYOND SAFE DRINKING WATER ACT REQUIREMENTS TO PROTECT OUR NEIGHBORS.





## HEALTH EFFECTS

### WHAT WE KNOW

- ◆ Exposure to perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) appears to be widespread globally
  - ◇ Studies found PFOS and PFOA in the blood samples of the general human population and wildlife nationwide (ATSDR 2009; EPA 2006a)
  - ◇ + 98% or more of the general US population has perfluorinated compounds (PFCs) in their blood
  - ◇ Exposure through ingestion is the primary concern
- ◆ Studies on exposed human populations indicate PFOS and/or PFOA may cause elevated cholesterol levels and possibly low infant birth weight
- ◆ When animals are given large doses, they exhibit developmental, reproductive and liver effects. Other studies suggest a link with cancer

### WHAT WE DON'T KNOW

- ◆ Health effects from exposure to low levels of PFOS and PFOA are not well known and studies are continuing
- ◆ It is not possible to definitively link exposures to PFOS and PFOA in water to a person's individual health issues
- ◆ Blood tests are not routinely done. The results can be inconclusive, do not allow for a determination of the source of the exposure, and do not predict health effects
- ◆ Long term exposure effects are still being investigated by the US Environmental Protection Agency (EPA)

# AVAILABLE NOW!

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## PERFLUORINATED COMPOUNDS

### WHAT ARE PFOS AND PFOA?

- ◆ Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are both perfluorinated compounds (PFCs) and have similar properties
  - ◇ Man-made compounds with multiple carbonfluorine-bonds
  - ◇ Break down slowly, which makes them useful for home and industrial purposes, but long-lasting in the environment
- ◆ Used since the 1950s in many products because of their stain and water repellant properties
  - ◇ Fire-fighting foam
  - ◇ Stains, paints, and grease
  - ◇ Fabric for upholstered furniture
  - ◇ Carpets
  - ◇ Nonstick cookware
  - ◇ Floor wax
  - ◇ Food packaging (e.g., lining of microwave popcorn bags, fast food wrappers)
- ◆ Now, widely distributed in the environment and have been detected in the blood of humans, wildlife and fish
- ◆ US Environmental Protection Agency (EPA) continues to investigate and work to eliminate sources

## UNREGULATED CONTAMINANT MONITORING RULE (UCMR)

- ◆ Perfluorinated compounds (PFCs) are unregulated contaminants that have never been sampled for in public water systems prior to 2013
- ◆ EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) program to collect data for contaminants suspected to be present in drinking water
  - ◇ Monitoring is required for public water systems serving > 10,000 persons
  - ◇ Data collection began in 2013 and will continue through 2016
- ◆ EPA is working to improve its understanding of the prevalence and toxicity of PFCs to determine if safe drinking water regulatory limits are needed
- ◆ EPA issued Provisional Health Advisories (PHAs) for the PFCs, PFOS and PFOA in 2009
  - ◇ The PHAs are reasonable health based hazard concentrations, above which actions should be taken to reduce exposure
  - ◇ Laboratories were only recently capable of analyzing for these contaminants

*The PHA for PFOS is 0.2 ug/L or 0.2 parts per billion  
The PHA for PFOA is 0.4 ug/L or 0.4 parts per billion*

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## PRIVATE WELL WATER INFORMATION

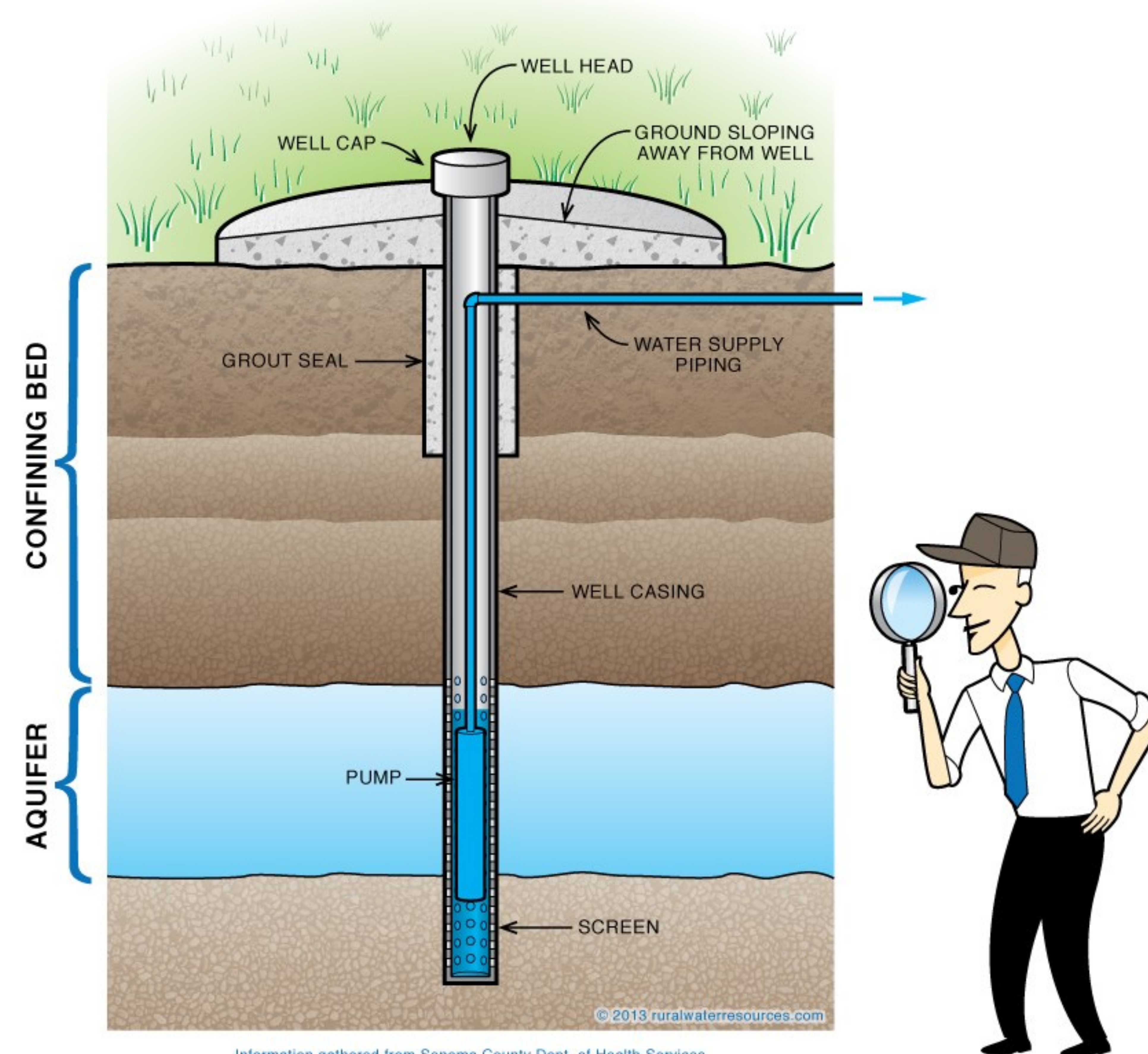
### Virginia Department of Health Division of Onsite Sewage and Water Services

**MISSION:** PROTECT PUBLIC HEALTH AND GROUND WATER QUALITY. ACHIEVED BY IMPLEMENTING PROGRAMS BASED ON SOUND SCIENTIFIC, ENGINEERING, AND PUBLIC HEALTH PRINCIPLES.

#### MANAGING THE RISKS

- ◆ Under current *Code of Virginia* and the *Private Well Regulations* **owners are responsible** for the ongoing quality, quantity and remediation of private wells
- ◆ There are no specific testing requirements mandated by law other than the bacteriological test for fecal coliform at the time the well is drilled and/or prior to the well being put into service
- ◆ Testing once a year is a good idea. Regular testing can tell you the quality of the water
- ◆ More frequent testing is recommended if you have a change in taste, odor, appearance, recurrent incidences of gastrointestinal illness, infants living in the home, or a failing septic system
- ◆ The National Groundwater Association recommends you test for bacteria, nitrates/nitrites and any other contaminants of local concern.
- ◆ Never connect a well to a public water supply
- ◆ If using water conditioner (aka, "water softener") equipment, it should be maintained and kept in working order.
- ◆ Do not dispose hazardous materials or chemicals on your property or near your well
- ◆ A permit from the Chesapeake Health Department is required

#### Typical Well Design



Information gathered from Sonoma County Dept. of Health Services

For more Information about wells or our environmental programs, please visit the websites below:

[www.wellwater.bse.vt.edu/vahwqp.php](http://www.wellwater.bse.vt.edu/vahwqp.php) and [www.ext.vt.edu](http://www.ext.vt.edu)

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