

# Why is the Navy Sampling for PFOA and PFOS?



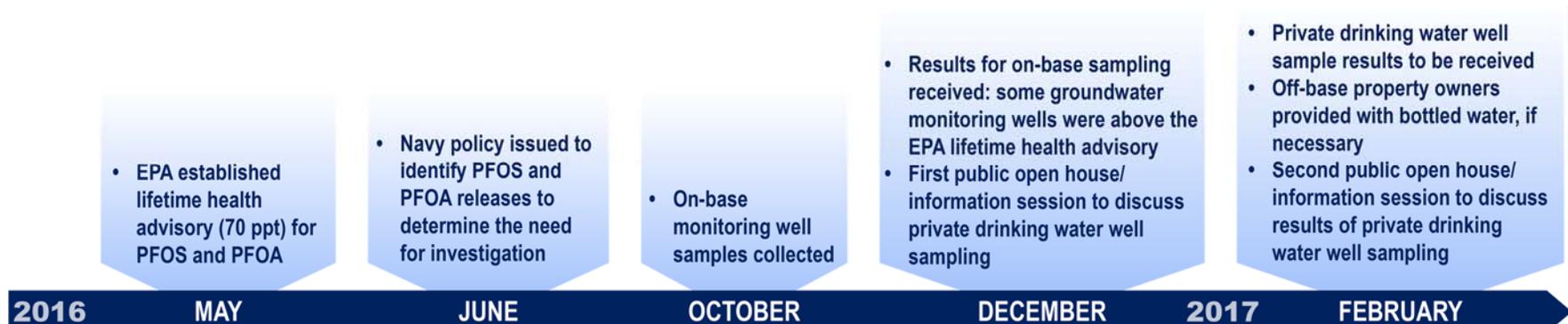
General information on PFOA and PFOS can be found online at [www.secnav.navy.mil/eie/pages/pfc-pfas.aspx](http://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx)

For updates on the NAS Oceana investigation, visit: [www.cnmc.navy.mil/oceana\\_water\\_info](http://www.cnmc.navy.mil/oceana_water_info)

If you have specific questions, please contact [oceana\\_pfc\\_\\_info.fct@navy.mil](mailto:oceana_pfc__info.fct@navy.mil) or 757-433-3132 (Note double underscore)

## The Navy is being protective by identifying potential exposure to PFOS and PFOA in private drinking water wells

- The Navy used PFCs/PFAS in many operations, specifically in fire fighting and training.
- The EPA established a lifetime health advisory (70 ppt) for two PFCs/PFAS, specifically PFOA and PFOS.
- We want to:
  - Determine if PFOA and PFOS resulting from Navy operations are present in private drinking water wells.
  - Provide bottled water if PFOA and PFOS levels at or above the lifetime health advisory are found.

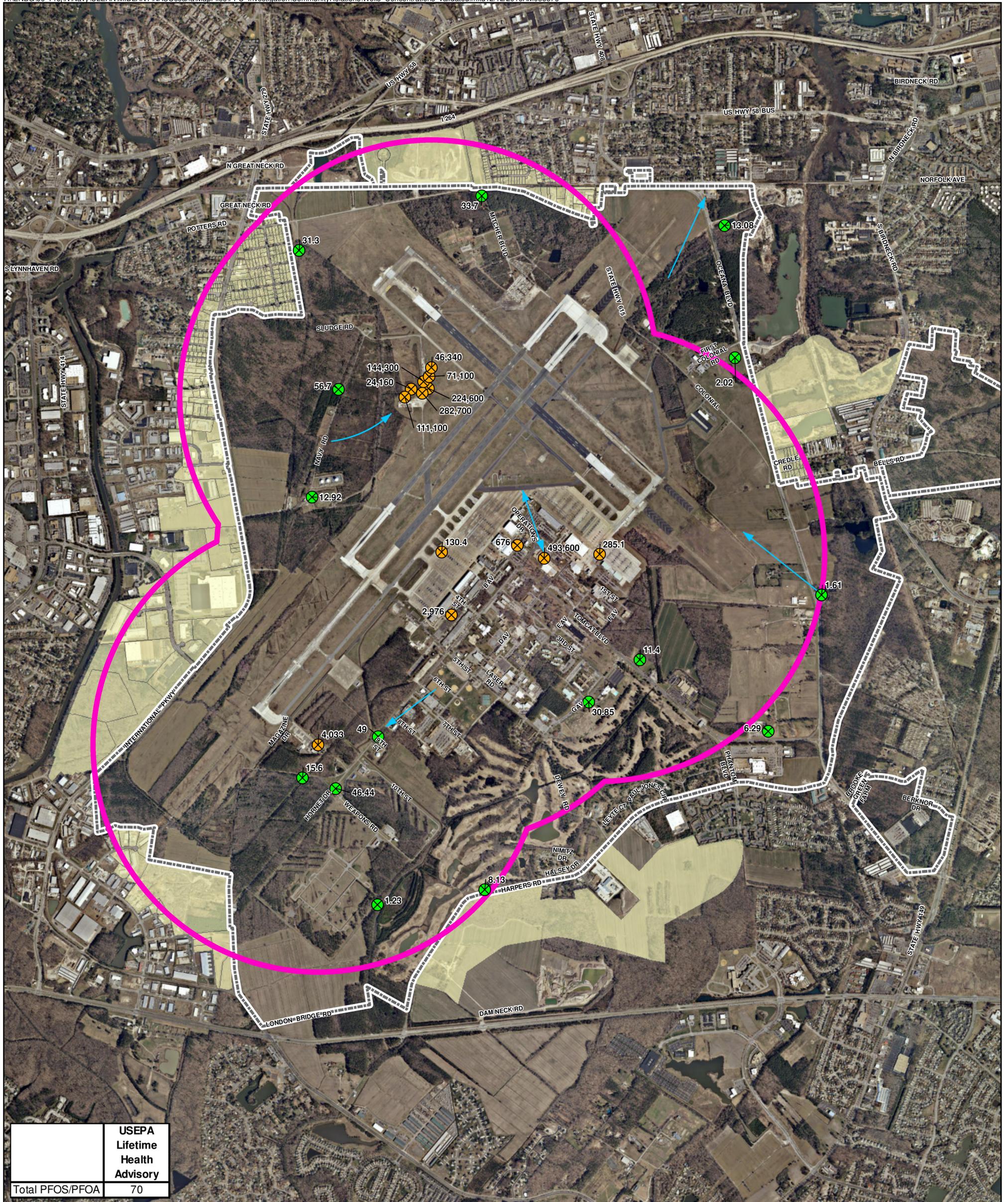


***The drinking water provided by the City of Virginia Beach has been tested and PFOA and PFOS were not detected***

EPA U.S. Environmental Protection Agency  
PFAS per- and polyfluoroalkyl substances

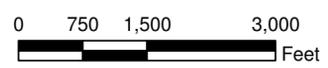
PFOA perfluorooctanoic acid  
PFOS perfluorooctane sulfonate

PFCs perfluorinated compounds  
ppt parts per trillion (1/1,000,000,000,000)



- Legend**
- Monitoring Wells with PFOS/PFOA Exceedances
  - Monitoring Wells with PFOS/PFOA Detections
  - Direction of Groundwater Flow
  - Sampling Area
  - Installation Boundary
  - Parcels within Sampling Area

Notes:  
 Concentrations shown are total PFOS/PFOA  
 All units are ppt (parts per trillion)



Imagery Source: Esri, 2016

PFOS/PFOA Detections and Designated Sampling Area  
 NAS Oceana  
 Virginia Beach, Virginia

# Drinking Water Sampling



General information on PFOA and PFOS can be found online at  
[www.secnave.navy.mil/eie/pages/pfc-pfas.aspx](http://www.secnave.navy.mil/eie/pages/pfc-pfas.aspx)

For updates on the NAS Oceana investigation, visit:  
[www.cnice.navy.mil/oceana\\_water\\_info](http://www.cnice.navy.mil/oceana_water_info)

If you have specific questions, please contact  
[oceana\\_pfc\\_info.fct@navy.mil](mailto:oceana_pfc_info.fct@navy.mil) or 757-433-3132  
(Note double underscore)

## The Navy will notify property owners of results beginning in February 2017

### Sampling Process

- Only for homes and businesses not consuming city water in the sampling area
  - Make appointment and complete questionnaire
- A team of qualified professionals will:
  - Review your questionnaire
  - Collect drinking water and quality control sample
  - Sampling should take approximately 45 minutes
- Samples will be analyzed in accordance with EPA guidelines

### Future Actions

- Provide bottled water to any property owners with concentrations at or above the lifetime health advisory
- Send notification letters to property owners with individual sampling results
- Determine if the sampling area needs to be expanded
- Share summary of results with the public
- Further investigate groundwater to develop appropriate clean-up actions
- Monitor movement of PFOA and PFOS in the groundwater and sample any private drinking water wells that may be impacted
- Continue to monitor the science and regulations related to PFCs/PFAS
- Continue to partner with EPA; VDEQ; City of Virginia Beach and local, state, and federal health agencies

***The drinking water provided by the City of Virginia Beach has been tested and PFOA and PFOS were not detected***

EPA U.S. Environmental Protection Agency  
PFAS per- and polyfluoroalkyl substances  
VDEQ Virginia Department of Environmental Quality

PFOA perfluorooctanoic acid  
PFOS perfluorooctane sulfonate  
PFCs perfluorinated compounds

# Perfluorinated Compounds/Polyfluoroalkyl Substances



General information on PFOA and PFOS can be found online at [www.secnav.navy.mil/eie/pages/pfc-pfas.aspx](http://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx)

For updates on the NAS Oceana investigation, visit: [www.cnic.navy.mil/oceana\\_water\\_info](http://www.cnic.navy.mil/oceana_water_info)

If you have specific questions, please contact [oceana\\_pfc\\_info.fct@navy.mil](mailto:oceana_pfc_info.fct@navy.mil) or 757-433-3132 (Note double underscore)

## Where do PFCs/PFAS come from?

- Man-made compounds
- Used since 1950s in many products, including:



AFFF



paints and coatings



industrial grease



carpets and fabrics



nonstick cookware



food packaging

- Break down slowly and last a long time in the environment
- Globally distributed and detected in people, wildlife, and fish

## EPA Health Advisory Level for PFCs/PFAS

- PFCs/PFAS are emerging contaminants of concern that have only recently been sampled in public water systems
- In 2016, the EPA developed a lifetime health advisory level for drinking water:
  - Combined advisory level of two PFAS – PFOS and PFOA: **70 ppt**
- The advisory level:
  - Is non-enforceable
  - Provides a margin of protection for people throughout their lifetimes
  - Informs states, agencies, and public health officials on health risks of PFOS and PFOA so they can take steps to reduce exposures
- If water contains PFOS and PFOA above the health advisory level, you should reduce exposure by using a different water source for drinking, cooking, brushing teeth, etc.

## How the Health Advisory is Calculated

- Based on best available peer-reviewed studies on health effects of PFOS and PFOA on laboratory animals
- Animals and humans do not process PFCs/PFAS the same way. Scientific methods account for these differences to be protective of the public
- Informed by studies with people exposed to different PFCs/PFAS levels and sources
- Assumed 80% of exposures from food, dust, and air; drinking water makes up 20% of exposure
- Protects sensitive populations including the fetuses or nursing infants of

AFFF	aqueous film forming foam	PFOA	perfluorooctanoic acid
EPA	U.S. Environmental Protection Agency	PFOS	perfluorooctane sulfonate
PFAS	per- and polyfluoroalkyl substances	ppt	parts per trillion
PFCs	perfluorinated compounds		

**The drinking water provided by the City of Virginia Beach has been tested and PFOA and PFOS were not detected**

# Exposure and Health Effects



General information on PFOA and PFOS can be found online at [www.secnav.navy.mil/eie/pages/pfc-pfas.aspx](http://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx)

For updates on the NAS Oceana investigation, visit: [www.cniv.navy.mil/oceana\\_water\\_info](http://www.cniv.navy.mil/oceana_water_info)

If you have specific questions, please contact [oceana\\_pfc\\_\\_info.fct@navy.mil](mailto:oceana_pfc__info.fct@navy.mil) or 757-433-3132  
(Note double underscore)

## Exposures to PFCs/PFAS

- Appears to be widespread across the globe
- Are primarily through ingestion:
  - Food, water, breast milk
- Consumer products treated to repel water or resist stains
- Dust and soil
- Will build up in the body over a lifetime until exposure stops
- Reach the fetuses or nursing infants of mothers who are exposed

## PFCs/PFAS in People

- More than 98% of the U.S. population have PFCs/PFAS in their bodies. Levels are going down because some PFCs/PFAS have been phased out of production.
- Some PFCs/PFAS stay in the body for a long time – there is no medical way to reduce PFCs/PFAS in the body.

## Should I Have My Blood Tested?

ATSDR and CDC understand and acknowledge that you may want to know the level of PFCs/PFAS in your body. However, there are some limitations with blood tests:

Test results will not provide clear answers for existing or possible health effects.

- Most of the U.S. population has one or more PFAS in their blood, especially PFOS and PFOA.
- Blood testing for PFCs/PFAS is not a routine test that health care providers offer.

## Health Effects

- Scientists are not yet certain about possible health effects from levels found in our water and food.
- PFOS and PFOA have been studied more than other PFCs/PFAS.
- Some but not all studies with people show that certain PFCs/PFAS:
  - May increase cholesterol levels
  - May affect the developing fetus and child including possible changes in growth, learning and behavior
  - May decrease fertility and interfere with the body's natural hormones
  - May affect the immune system
  - Suggest an increased cancer risk (results are inconclusive)
- In studies, animals given large doses exhibit developmental, reproductive, and liver effects and increased cancer.
- More research is needed to confirm or rule out possible links

AFFF	aqueous film forming foam	PFOA	perfluorooctanoic acid
EPA	U.S. Environmental Protection Agency	PFOS	perfluorooctane sulfonate
PFAS	per- and polyfluoroalkyl substances	ppt	parts per trillion
PFCs	perfluorinated compounds		

***The drinking water provided by the City of Virginia Beach has been tested and PFOA and PFOS were not detected***

# Routine Private Well Maintenance and Testing



Additional information can be found online at  
[www.secnav.navy.mil/eie/pages/pfc-pfas.aspx](http://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx)

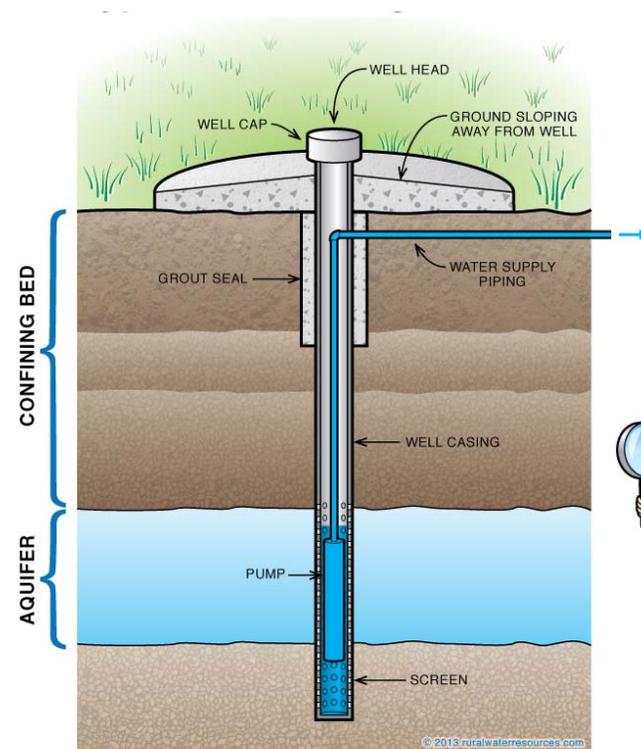
For updates as more information becomes available, visit  
[www.cnic.navy.mil/oceana\\_water\\_info](http://www.cnic.navy.mil/oceana_water_info)

If you have specific questions, please contact  
[oceana\\_pfc\\_info.fct@navy.mil](mailto:oceana_pfc_info.fct@navy.mil) or 757-433-3132  
(Please note double underscore)

## 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 private 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 of hazardous materials or chemicals on your property or near your well.
- A permit from the Virginia Beach Health Department is required.

## Typical Well Design



Information gathered from Sonoma County Dept. of Health Services

***The drinking water provided by  
the City of Virginia Beach has been tested  
and PFOA and PFOS were not detected***

## For More Information...

Additional information can be found online at:  
[www.vdh.virginia.gov](http://www.vdh.virginia.gov)