## Why Does the Navy Sample for PFOS and PFOA?

For more information, please visit www.cnic.navy.mil/FentressInfo

If you have specific questions, please contact fentressinfo@navy.mil or 757-433-3132

# The Navy is identifying and mitigating potential exposure to unregulated compounds (PFOS and PFOA) in drinking water.

### The Navy PFAS policy goes beyond the requirements of the Safe Drinking Water Act.

- In May 2016, the EPA established a drinking water lifetime health advisory of 70 ppt for two PFAS compounds, PFOS and PFOA.
- The Navy is taking action to protect our on-base personnel and civilian neighbors who may be exposed to drinking water that has PFOS and/or PFOA above the EPA lifetime health advisory.



EPAU.S. Environmental Protection AgencyGACgranular activated carbon

NALFNaval Auxiliary Landing FieldPFASper- and polyfluoroalkyl substances

PFOA perfluorooctanoic acid PFOS perfluorooctane sulfonate

# **NALF Fentress PFAS Investigation Timeline**

For more information, please visit www.cnic.navv.mil/FentressInfo If you have specific questions, please contact fentressinfo@navv.mil or 757-433-3132

### **SEPTEMBER 2015**

Navy policy required drinking water sampling for PFOS and/or PFOA (commonly found in firefighting foam) on some Navy bases.

### IANUARY 2016

#### On-base results received.

- Drinking water concentrations detected above EPA provisional health advisory levels.
- Some groundwater monitoring wells were above EPA provisional health advisory levels.

#### **MARCH 2016**

Off-base property owners notified of results and provided with bottled water where drinking water concentrations were greater than the EPA provisional health advisory levels. Public information session held.

### **MAY 2016**

Properties in expanded area sampled with permission from property owners.

Lifetime health advisory issued by EPA resulted in the Navy providing bottled water to additional properties. Issuance of the lifetime health advisory did not result in any additional homes to be sampled.

### **MAY–IUNE 2017**

Treatment systems installed on six off-base drinking water wells to conduct a treatability study to evaluate granular activated carbon treatment of PFAS.

### DECEMBER 2017

On-base drinking water treatment system began operating.

### MARCH-APRIL 2018

Resampling results received and notification provided to residents; no additional action required.

EPA U.S. Environmental Protection Agency granular activated carbon GAC

Naval Auxiliary Landing Field NALF per- and polyfluoroalkyl substances PFAS

### DECEMBER 2015

The Navy sampled drinking water and groundwater at NALF Fentress.

### FEBRUARY 2016

Public information session held, community water station established, and off-base drinking water sampled with permission from property owners.

### **APRIL 2016**

Sampling area expanded due to exceedances of EPA provisional health advisory levels in initial sampling area.

### **IUNE 2016**

Off-base property owners notified of results. No additional actions required.

### **OCTOBER–NOVEMBER 2017**

Off-base monitoring wells installed to assess potential migration of PFAS.

### FEBRUARY 2018

Voluntary resampling of all parcels within designated sampling area conducted.

#### OCTOBER 2018

Engineering Evaluation/Cost Analysis available for public review and comment from 10/08/2018-11/07/2018 at Chesapeake Central Library, 298 Cedar Road, Chesapeake, Virginia 23322.

PFOA perfluorooctanoic acid ppt parts per trillion

perfluorooctane sulfonate PFOS



EPA GAC NALF U.S. Environmental Protection Agency

granular activated carbon Naval Auxiliary Landing Field

PFAS PFOA perfluorooctanoic acid per- and polyfluoroalkyl substances

PFOS parts per trillion perfluorooctane sulfonate

ppt





### Engineering Evaluation/Cost Analysis – Drinking Water Long-Term Solutions

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### **Alternative 1 – No Further Action**

- Bottled water would continue to be provided every two weeks to off-base residents with drinking water above the EPA lifetime health advisory.
- Off-base pilot granular activated carbon (GAC) treatment systems currently installed as treatability studies would be removed.
- On-base GAC treatment system would continue.

### **Alternative 2 – Point of Entry Treatment**

- System will be maintained for continuous use.
- Alternative 2A Removal of PFOS and PFOA using GAC.
- Alternative 2B Removal of PFOS and PFOA using ion exchange.
- Alternative 2C Removal of PFOS and PFOA using reverse osmosis.



### Recommended Alternative (Alternative 3) – Connect to City of Chesapeake Water System

 Connect impacted properties to the City of Chesapeake water system.



EPA U.S. Environmental Protection Agency GAC granular activated carbon NALF Naval Auxiliary Landing Field PFAS per- and polyfluoroalkyl substances PFOA perfluorooctanoic acid PFOS perfluorooctane sulfonate

### Recommended Alternative – Connect to City of Chesapeake Water System

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# What Are PFAS, PFOS, and PFOA?

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### What Are PFAS?

- Man-made compounds (not naturally occurring).
- Have been used since 1950s in many products.
- Last a long time in the environment.
- Found in people, animals, and fish around the world.





firefighting foam



stain-resistant carpets



nonstick cookware

paints and stains



water-repelling fabrics



food packaging

### What Is an EPA Lifetime Health Advisory?

- Establishes concentrations in drinking water that are protective of the most sensitive populations and the general public, even for lifetime exposure.
- Is based on the latest available studies of lab animals and exposed human populations.
- Provides information to state agencies and public health officials on health effects and water treatment so they can take steps to reduce exposures.
- Is non-enforceable.

### What Is the EPA Lifetime Health Advisory for PFOS and PFOA?

- The lifetime health advisory is only for two types of PFAS PEOS and PEOA.
- The lifetime health advisory is exceeded if the amount of PFOS and PFOA (combined or individually) is greater than 70 ppt.
- 1 ppt is equivalent to one grain of sand in an Olympic-size swimming pool.
- ATSDR Agency for Toxic Substances and **Disease Registry**
- CDC Centers for Disease Control and Prevention
- U.S. Environmental Protection Agency EPA GAC
  - granular activated carbon
- NALF Naval Auxiliary Landing Field
- PFAS per- and polyfluoroalkyl substances
- PFOA perfluorooctanoic acid
- perfluorooctane sulfonate PFOS parts per trillion ppt

# **Exposure and Health Effects**

Levels of PFOS and PFOA

in blood serum of the U.S.

population since their phase-out from products

began around 2002

Source: CDC National Health and Nutrition Examination Survey

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### **PFAS in People**

- CDC monitoring estimates that most people in the U.S. have PFAS in their bodies.
- Levels of PFOS and PFOA are going down over time following their phase-out from use.
- Some PFAS stay in the body a long time – there is no recommended medical treatment to reduce PFAS in the body.

**Exposures to PFAS** 

- Appear to be widespread around the world.
- Are primarily through ingesting contaminated food, water, or soil.
- Cause PFAS to build up in the body until exposure stops.
- Cause PFAS to reach the unborn babies or nursing infants of mothers who are exposed.
- Are not significant through skin contact when bathing or showering.



- Research is needed to learn more about the possible links between PFAS exposure and health effects.
- Animals exposed to high levels of PFAS had changes in liver, thyroid, and pancreas function; altered hormone levels; and increased rates of certain cancers.
- Based on available studies of people who have experienced high levels of exposure, potential health effects include:
  - Increased cholesterol levels
- Decreased fertility
- Changes in growth, learning, and behavior of the developing unborn baby and child
- Immune system changes
- Altered hormone function
- Increased risk of certain types of cancer
- The levels of PFOS or PFOA in drinking water do not predict what, if any, health impact might occur as a result of exposure.
- ATSDR Agency for Toxic Substances and **Disease Registry**
- CDC Centers for Disease Control and Prevention
- U.S. Environmental Protection Agency EPA
- GAC granular activated carbon

- NALF Naval Auxiliary Landing Field
- PFAS per- and polyfluoroalkyl substances
- PFOA perfluorooctanoic acid PFOS
- perfluorooctane sulfonate ppt
  - parts per trillion

# **Managing Your Private Well**

If you have specific questions, please contact Chesapeake Health Department 757-382-8661 | ChdEnvHlth@vdh.virginia.gov | www.vdh.virginia.gov/chesapeake

### **Managing the Risks**

- Testing of private wells is recommended to ensure water quality.
- Bacteriological testing once a year is a good idea. Regular testing can tell you the quality of the water.
- More frequent testing is recommended if your water changes in taste, odor, or appearance.
- The National Ground Water Association recommends well owners test their water at least annually for contaminants, including bacteria and nitrates.
- If using water conditioner (aka, "water softener") equipment, it should be maintained and kept in working order.
- Do not dispose of or store hazardous materials or chemicals near your well.

### **Typical Well Design**



Information gathered from Sonoma County Dept. of Health Services

# **Drinking Water Sampling Process**

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### **Future Sampling**

Beginning in February 2019, the Navy will begin twiceyearly sampling of private drinking water wells in the sampling area at no cost to the property owner. Residents within the designated sampling area will be contacted by a Navy representative to request sampling.

### **Sampling Process**

- If you are within the designated sampling area and haven't yet been sampled, we appreciate your help to:
  - Make your appointment (sampling will take approximately 30 minutes).
  - Provide any new information such as contact information or upgrades/changes to your well.
- A team of qualified professionals will:
  - Collect water from the sample point (water will run for 3–5 minutes).
  - Analyze the sample according to EPA guidelines with strict quality control and quality assurance protocols.

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