



Why Is the Navy Sampling Drinking Water Wells Nationwide?

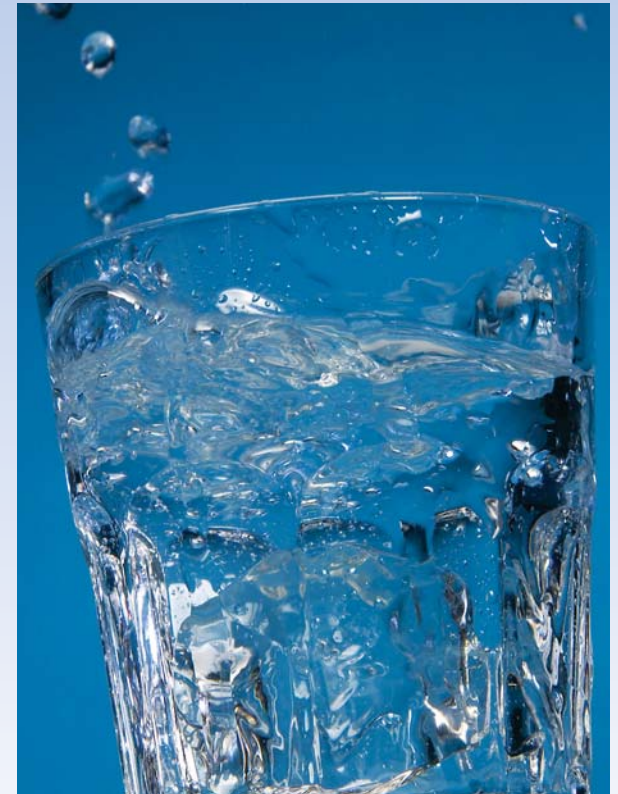
Additional information can be found online at
www.secnave.navy.mil/eie/pages/pfc-pfas.aspx

For updates as more information becomes available, visit
<https://www.navfac.navy.mil/NWPFAS>

If you have specific questions, please contact
PAO_Feedback@navy.mil or 844-NBKBNGR (844-625-2647)

The Navy is committed to protecting our neighbors' drinking water and taking responsibility for our previous operations.

- In 2016, the EPA established a drinking water lifetime health advisory for two currently unregulated PFAS, specifically PFOS and PFOA.
- The most common historical Navy use of PFOS and PFOA was in firefighting foam.
- The Navy no longer uses firefighting foam for training.
- In 2016, the Navy issued a protective policy to identify and prioritize sites with the potential for exposure to PFOS and PFOA.
- The Navy has started assessing bases to identify and address the potential for exposure to PFOS and PFOA.
- The Navy has identified possible PFAS release areas. We need your help to determine if there are impacts to drinking water wells.



ACRONYMS & ABBREVIATIONS

EPA U.S. Environmental Protection Agency
NBK Naval Base Kitsap

PFAS per- and polyfluoroalkyl substances
PFOA perfluorooctanoic acid

PFOS perfluorooctane sulfonate
ppt parts per trillion



Potential On-base PFAS Releases

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- NBK Bangor is following the EPA's Environmental Cleanup Process for assessment of PFAS releases:
 - Historical records research
 - Interviews with knowledgeable personnel
 - Database searches
 - Site visit
 - Review of local water supply information
- Findings documented in a Preliminary Assessment report.
- 22 on-base areas identified as potential PFAS release areas (see map).
- On-base soil and groundwater sampling planned for 2021.
- In general:
 - PFAS materials are relatively mobile and can move from the surface, to surface water and groundwater.
 - Once in groundwater, PFAS may move off-base into neighboring drinking water wells.

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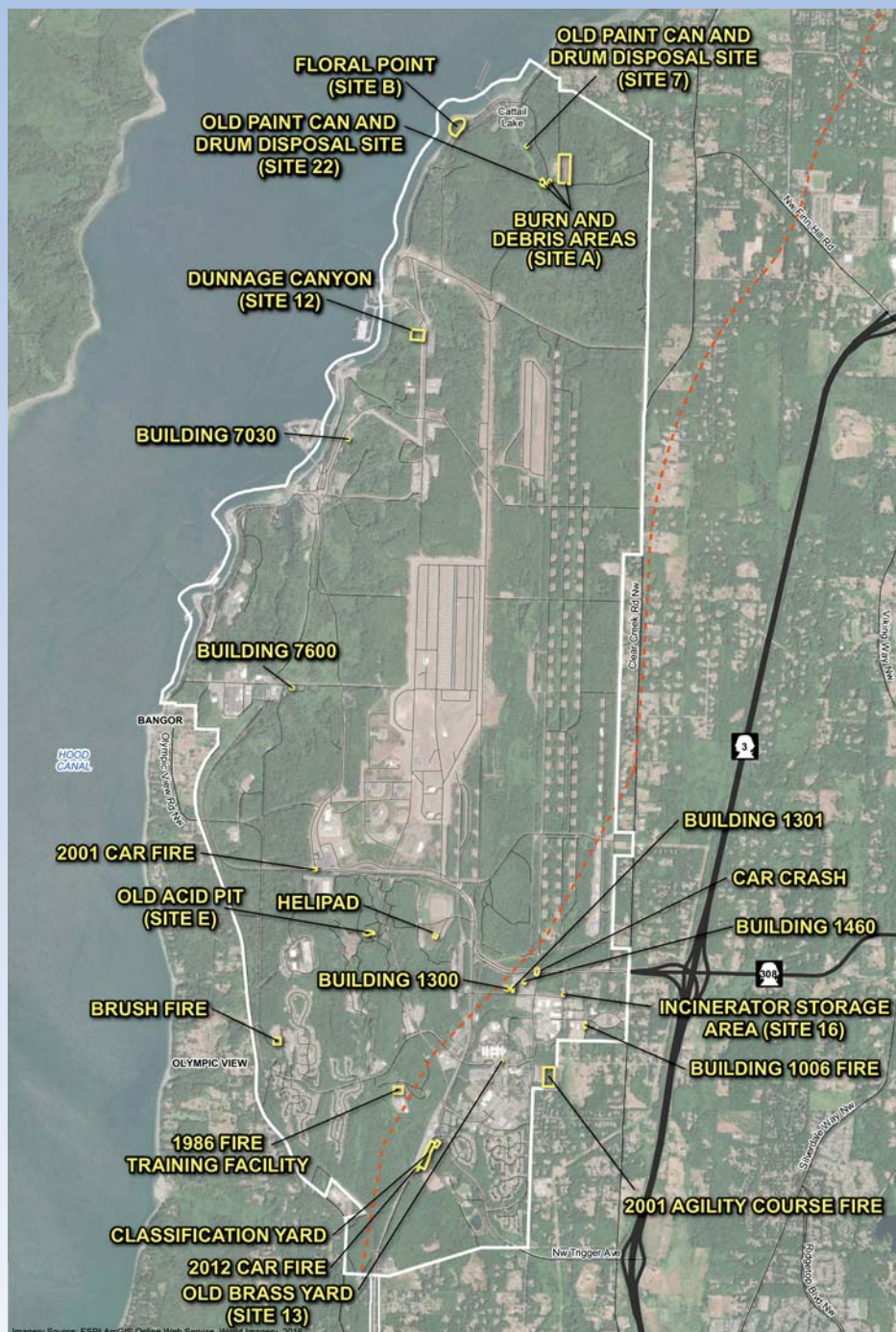


Known/Possible On-Base PFAS Release Areas

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LEGEND

Installation boundary

Potential PFAS release area

Shallow aquifer groundwater divide

0 0.5 1 mile

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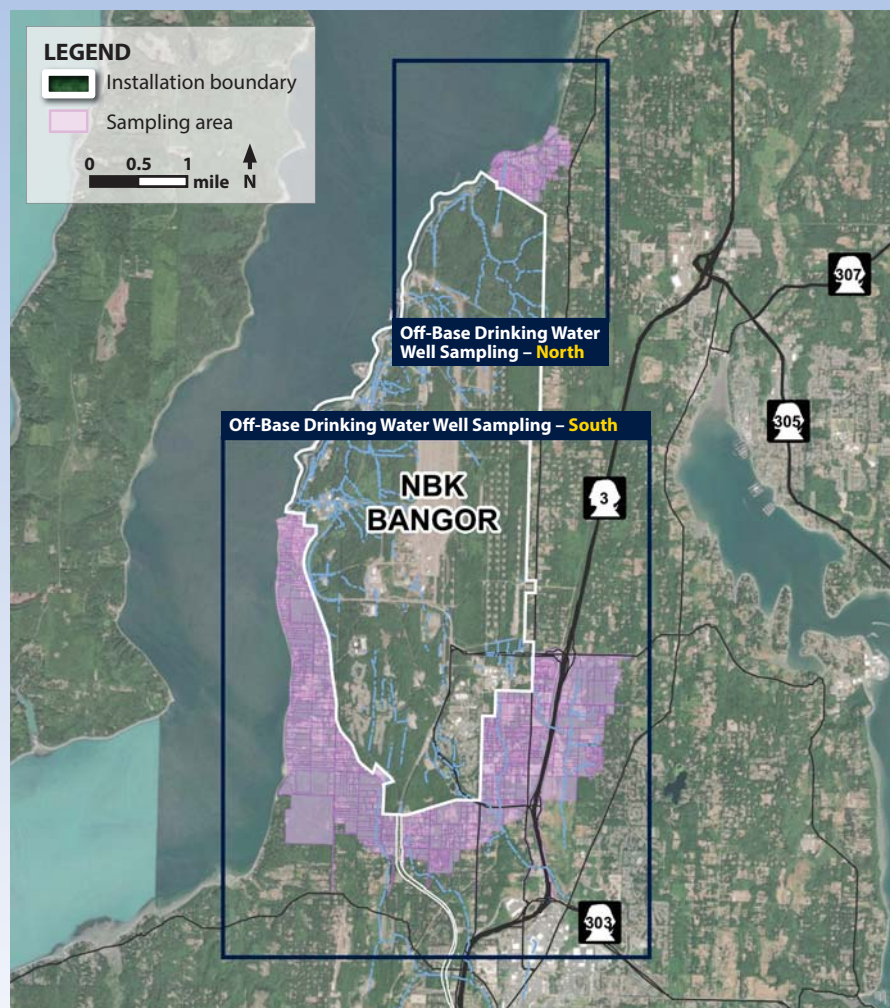


Off-Base Drinking Water Well Sampling

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The Navy needs your help to sample your drinking water well.

- The sampling area is primarily in the direction of groundwater flow from the potential on-base PFAS release areas.
- Based on the results of off-base drinking water well sampling, the Navy may expand the off-base sampling area.
- On-base assessments are underway because of previous uses of PFAS-containing materials, such as firefighting foam.

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Off-Base Drinking Water Well Sampling – North

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For updates as more information becomes available, visit <https://www.navfac.navy.mil/NWPFA5>

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LEGEND

- Potential PFAS release area
- Anticipated shallow aquifer groundwater flow direction
- Sampling area
- Installation boundary
- Surface water flow direction

0 0.25 0.5 mile N

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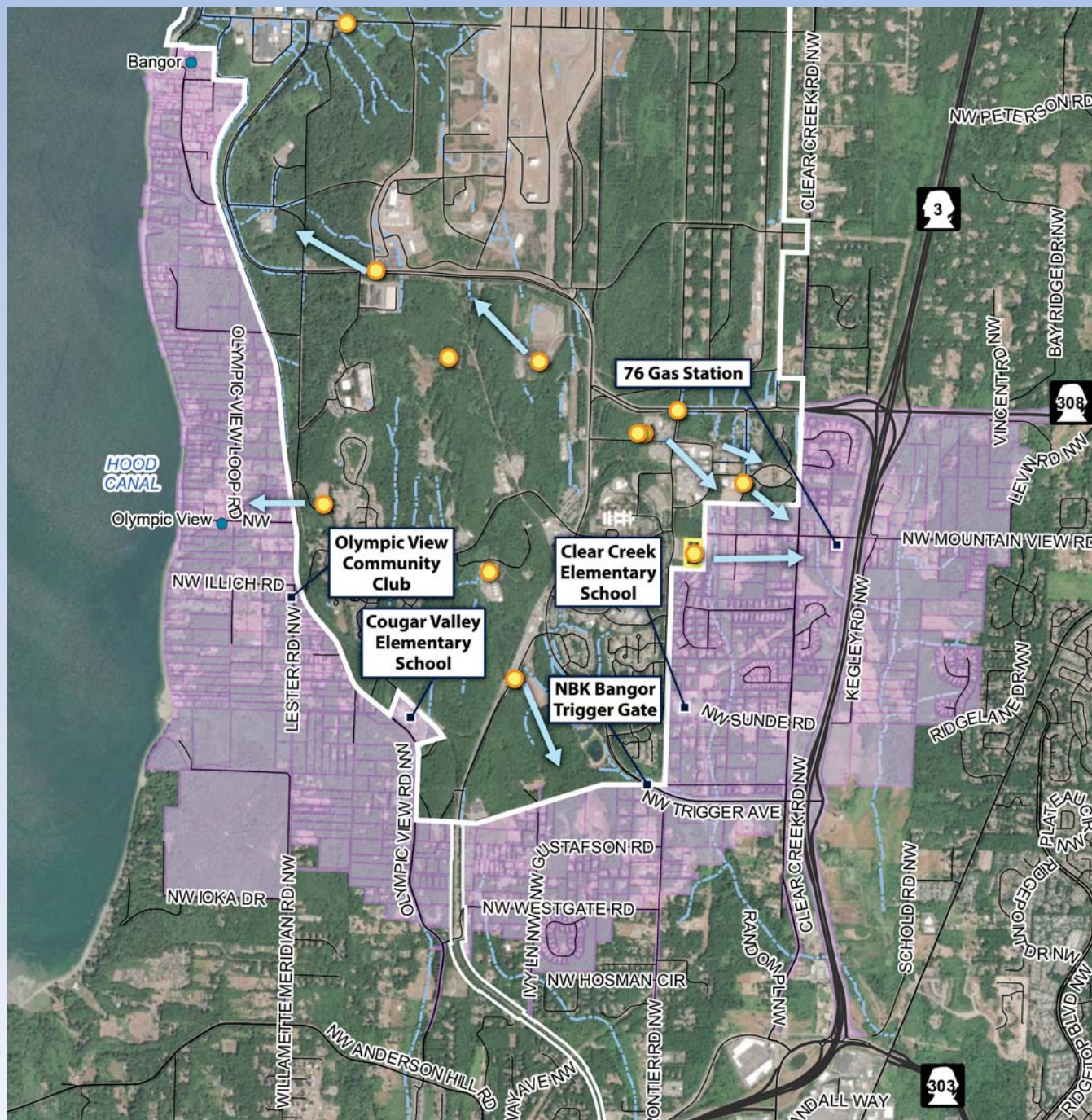


Off-Base Drinking Water Well Sampling – South

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LEGEND

- Potential PFAS release area
- Anticipated shallow aquifer groundwater flow direction
- Installation boundary
- Sampling area

0 0.25 0.5
mile N

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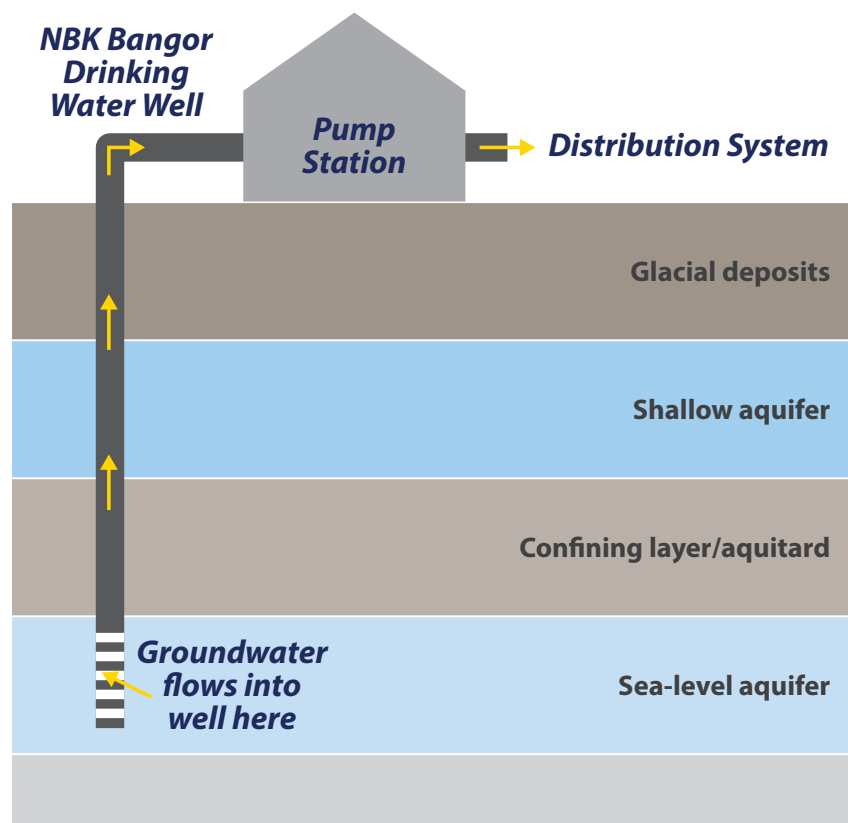


NBK Bangor Drinking Water

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NBK Bangor's drinking water is safe to drink.

- On-base drinking water was sampled in 2014, and PFAS was not detected.
- On-base drinking water wells are upgradient from potential PFAS release areas and collect groundwater from a deeper aquifer.
- Results of sampling for regulated contaminants can be found in annual Consumer Confidence Reports at:
https://www.cnrc.navy.mil/regions/cnrnw/om/environmental_support/water_quality_information.html

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Per- and Polyfluoroalkyl Substances (PFAS) and Exposure

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Where Do PFAS Come From?

- Manufactured compounds; no natural occurrence.
- Used since 1950s in products and industry.
- Last a long time in the environment.



firefighting foam



stain-resistant carpet and fabrics



nonstick cookware



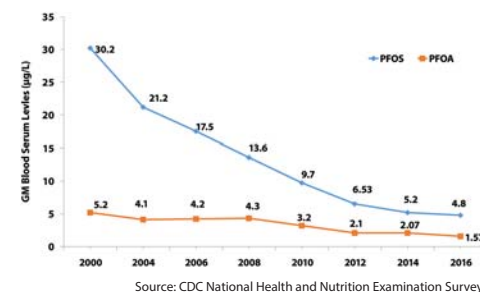
food packaging

Exposures to PFAS

- Occurs primarily from swallowing:
 - Contaminated water
 - Fish, meat, or crops grown in contaminated areas
 - Food wrapped in PFAS-coated paper or containers
- Breathing or accidentally swallowing PFAS that escapes from products in the home.
- Can reach babies in the womb through placenta and nursing infants through breast milk of exposed mothers.
- Skin contact while bathing or showering is unlikely to be significant exposure.

PFAS in People

- CDC monitoring estimates that most people in the U.S. have PFAS in their bodies.
- Levels of PFOS and PFOA are decreasing in blood serum of the U.S. population 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.



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CDC Centers for Disease Control and Prevention

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Health Concerns and Advisory Levels

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How Might PFAS Exposure Affect People's Health?

- We are still learning about health effects of PFAS in people, but the most studied PFAS indicate some health risks in people.
- Based on limited evidence from studies with people, potential health effects found to be associated with exposure include:
 - Increased cholesterol levels
 - Decreased immune response to vaccines
 - Increased risk of thyroid disease
 - Increased liver enzymes in serum
 - Increased risks of some cancers
- Animal testing with some PFAS shows damage to liver, thyroid, and immune system; PFOS and PFOA exposures resulted in reduced growth, altered development, and some cancers.
- The levels of PFOS or PFOA cannot be linked to an individual's current or future health effects.

The Navy will provide bottled water if your sampling results are above the EPA lifetime health advisory (70 ppt).

What Is the EPA Lifetime Health Advisory?

- Sets a concentration of 70 ppt PFOS and PFOA in drinking water.
- Protects against harmful health effects to sensitive populations and the general public.
- Assumes exposure over a lifetime.
- Provides information to state agencies and public health officials on health effects and water treatment so they can take steps to reduce exposures.
- Is only an advisory and is therefore non-enforceable.

How Was the EPA Health Advisory Calculated?

- Is based on studies of health effects with PFOS and PFOA in laboratory animals.
- Considers information regarding health effects of people exposed to PFOS and PFOA.
- Protects sensitive populations, including babies in the womb of mothers who are exposed.
- Assumes 20 percent of overall exposure is from drinking water, 80 percent of overall exposure is from other sources.

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Environmental Cleanup Process

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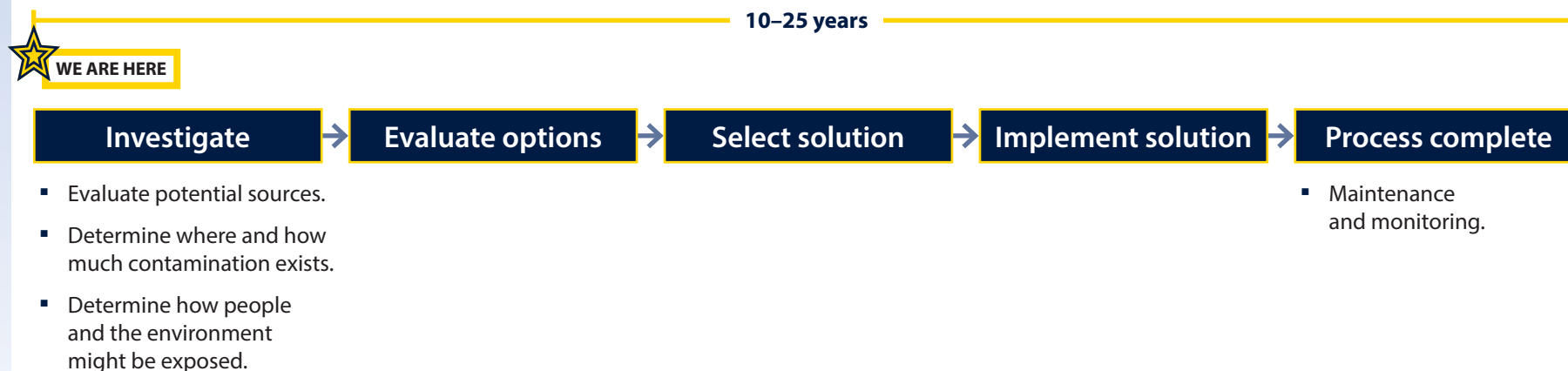
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PRIORITY: Protect Human Health and the Environment

- Identify and clean up contamination.
- EPA and Washington Department of Ecology work closely with the Navy and provide oversight.
- Public input is welcome throughout the process.
- The Navy is in the early stages.
- The process can be lengthy.

Environmental Cleanup Process



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Next Steps for Drinking Water

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Sequence of Events

Approximate Timeframe

1. Sign up for sampling drinking water well.	■ Now
2. Navy contractor samples well.	■ Beginning Friday, February 21
3. Navy receives preliminary results.	■ Approximately 30 days after sample collected
4. Navy calls property owner with results.	■ Within 24 hours of results received ■ Bottled water distributed if results are above the EPA lifetime health advisory (70 ppt)
5. Navy validates data.	■ Approximately 30 days from receipt of preliminary results
6. Navy mails final data to property owner.	■ Approximately 3 months from sampling

Ongoing Actions

- Potentially expand the sampling area based on sampling results.
- Continue to communicate with residents.
- Continue on-base PFAS investigation.
- Continue to partner with federal and state agencies.

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We Need Your Help – Drinking Water Sampling Process

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Drinking water well sampling is voluntary.

Sampling Process

- We need your help to:
 - Make your appointment (sampling takes less than an hour).
 - Fill out the questionnaire prior to sampling appointment.
- Samples will be collected by a team of qualified professionals:
 - Team will consist of two members.
 - The water sample will be collected as close to well as possible.
 - Water will run for 5 minutes prior to collection.
 - Preliminary results will be communicated to property owner within 24 hours of receipt, approximately 30 days from date of sampling.
- Samples will be collected and analyzed according to EPA guidelines.

SCHEDULE YOUR APPOINTMENT HERE TODAY

To schedule an appointment
after today, call:

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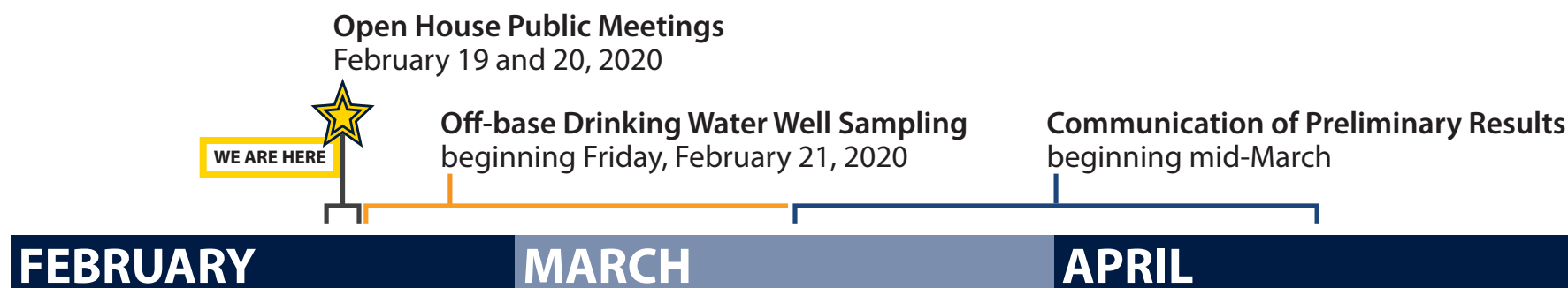
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Off-Base Drinking Water Well Sampling

- The Navy will be sampling drinking water wells in the sampling area.
- Sampling is at no cost to you.
- Drinking water samples will be collected beginning **Friday, February 21, 2020**.
- General sampling appointments are available
9 a.m.–6 p.m. Monday–Friday | 9 a.m.–1 p.m. Saturday | 1 p.m.–5 p.m. Sunday
Additional times available upon request
- The property owner must give permission for sampling and complete the questionnaire.
- Sampling takes less than an hour.
- An adult (18 years or older) must be present during sampling.

Off-Base Drinking Water Sampling Activity Timeline



Washington is Developing State Action Levels

State Board of Health—Rulemaking

Washington is in the process of setting State Action Levels for five PFAS in drinking water.

- ◆ Action Levels are public health goals for long-term water consumption.
- ◆ A draft rule is available for public review.
- ◆ A final rule is expected in late 2020.

If Adopted, the Rule Would:

- ◆ Require public water systems (Group A) to test for PFAS.
- ◆ Require consumers to be notified, if PFAS are detected.
- ◆ Help us understand occurrence of PFAS in Washington State drinking water and inform water systems and customers about how to address contamination.



Draft State Action Levels for per- and polyfluoroalkyl substances (PFAS)

Individual PFAS	Level in Drinking Water
PFOA	10 ppt
PFOS	15 ppt
PFNA	14 ppt
PFHxS	70 ppt
PFBS	1,300 ppt

ppt = parts per trillion

Action Levels are Protective

- ◆ A level in daily drinking water, unlikely to cause health effects over a lifetime of exposure.

Based on...

- ◆ 2019 DOH review of best available science and more recent health assessments.
- ◆ Higher exposures in breastfeeding infants.
- ◆ Assumption that 20-50 percent of PFAS exposure comes from drinking water sources. 50-80 percent can come from diet and other sources.
- ◆ Long-term exposure (>10 years) in daily drinking water.
- ◆ Minnesota Department of Health, infant exposure model.

Acronyms

DOH Washington State Department of Health
PFOA perfluorooctanoic acid
PFOS perfluorooctane sulfonic acid

PFNA perfluorononanoic acid
PFHxS perfluorohexane sulfonic acid
PFBS perfluorobutane sulfonic acid