Naval Facilities Engineering Systems Command
NAVFAC Washington

Naval Research Laboratory – Chesapeake Bay Detachment Restoration Advisory Board Meeting

September 14, 2022

5:00 - 7:00 p.m.

Agenda

- Welcome and Introductions
- Virtual Meeting Logistics
- Review and Approve November 2021 Meeting Minutes
- Site 10 Site Inspection Conclusions and Next Steps
  - Questions & Comments from RAB Members
- Site 10 Interim Removal Action – Surface Water Treatment
  - Questions & Comments from RAB Members
- Regulatory Updates
  - Questions & Comments from RAB Members and Public
- Future Meeting Planning and Adjournment

Naval Facilities Engineering Systems Command
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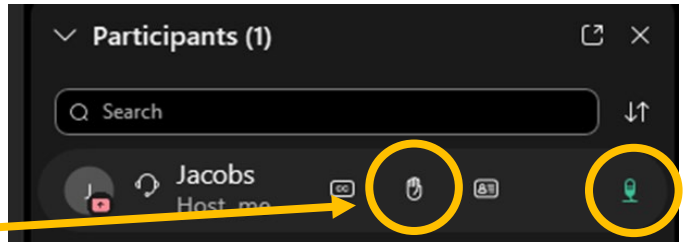
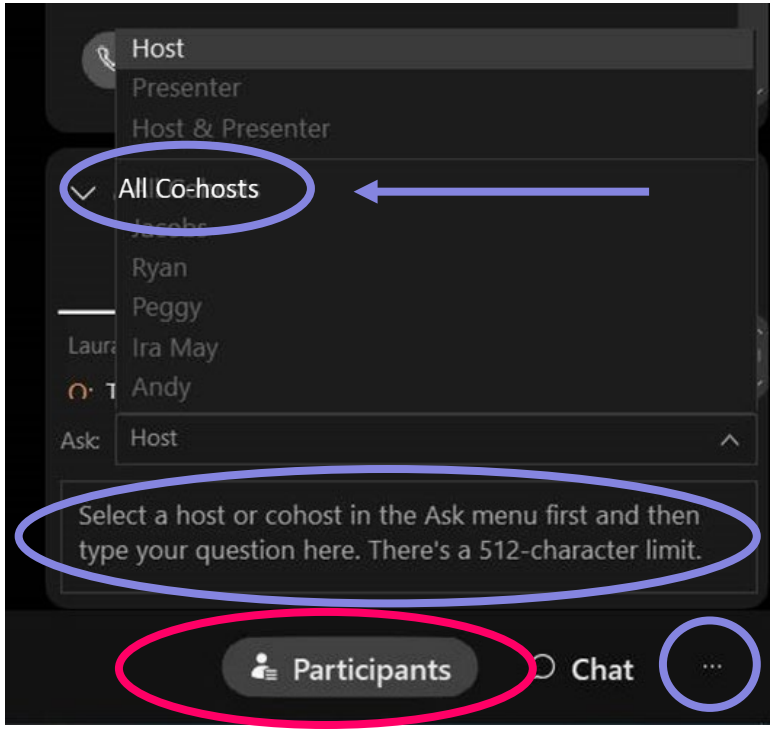
Virtual Meeting Logistics

Amy Brand - Jacobs

Webex Basics – Computer Access Participants

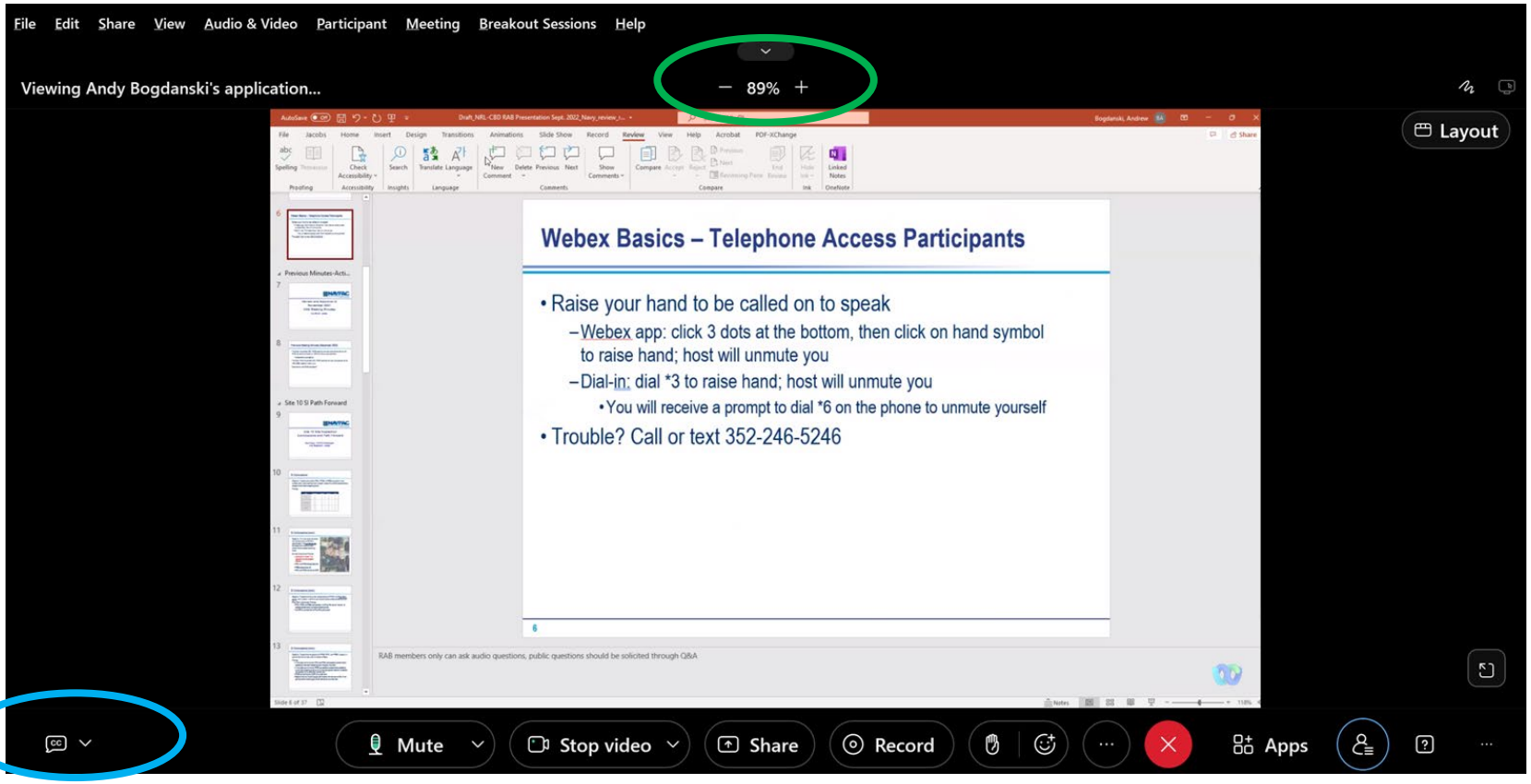
- Video – OFF except for presenters
- Open participants list
- To ask a question:
  1. RAB Members - Raise hand to be called on to speak
     - Scroll over your name in the participant list and click on hand symbol
     - Unmute yourself when called on
  2. Public participants - Type a question to "all co-hosts" in the Q&A panel
     - Click on 3 dots in lower right corner, choose Q&A
     - Select "all co-hosts" and type question
     - Questions will be answered at the end of the meeting
- Problems? Call/text 352-246-5246





Webex Basics – Computer Access Participants

- To zoom in on a slide



- To enable closed captioning

Webex Basics – Telephone Access Participants

- Follow along on slides sent by email to RAB members
- Raise your hand to be called on to speak
  - Dial *3 to raise hand; host will unmute you
  - You will receive a prompt to dial *6 on the phone to unmute yourself
- Problems? Call or text 352-246-5246

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Review and Approval of November 2021 RAB Meeting Minutes

Amy Brand - Jacobs

Previous Meeting Minutes (December 2020)

- The Draft November 2021 RAB meeting minutes were distributed to the RAB via email on March 24, 2022 for review and comment
  - No comments were received.
- The Draft Final November 2021 RAB meeting minutes were posted to the NRL-CBD website in early July.
- Approval to finalize?

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Site 10 Site Inspection Conclusions and Path Forward

Andy Bogdanski - Jacobs

Ryan Mayer - NAVFAC Washington

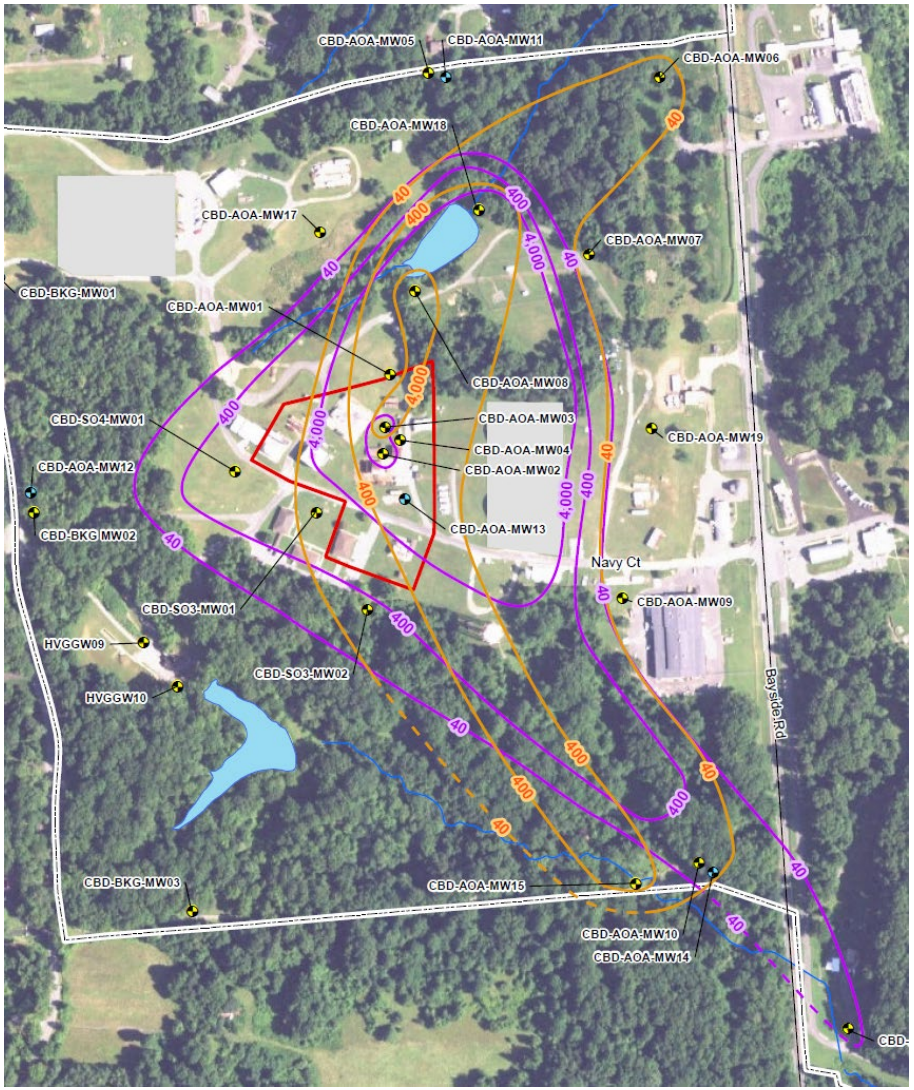
SI Conclusions

- Objective: To determine whether PFOA, PFOS, or PFBS are present in soil, surface water, and/or sediment and if present, determine whether concentrations exceed human health screening levels
- Findings:

Media	Compound	Detected	Above Screening Level	Constituent of Potential Concern
Soil	PFOA	Yes	No	No
	PFOS	Yes	Yes	Yes
	PFBS	Yes	No	No
Surface Water	PFOA	Yes	Yes	No
	PFOS	Yes	Yes	Yes
	PFBS	Yes	No	No
Sediment	PFOA	Yes	No	No
	PFOS	Yes	Yes	No
	PFBS	No	No	No

SI Conclusions (cont.)

- Objective: To further refine the lateral and vertical extents of PFAS in groundwater in the surficial aquifer and determine whether current concentrations exceed screening levels
- Surficial Groundwater Findings:
  - Lateral extent refined in the upgradient and downgradient directions
  - PFOA and PFOS detected above screening level
  - PFBS detected below screening level
  - PFOA and PFOS identified as constituent of potential concern



SI Conclusions (cont.)

- Objective: To determine the current concentrations of PFAS in the Piney Point aquifer, and if present, whether current concentrations exceed screening levels
- Piney Point Groundwater Findings:
  - PFOA, PFOS, and PFBS were detected in the Piney Point aquifer; however, all detected concentrations were below screening levels.
  - No constituents of potential concern were identified for Piney Point groundwater.

SI Conclusions (cont.)

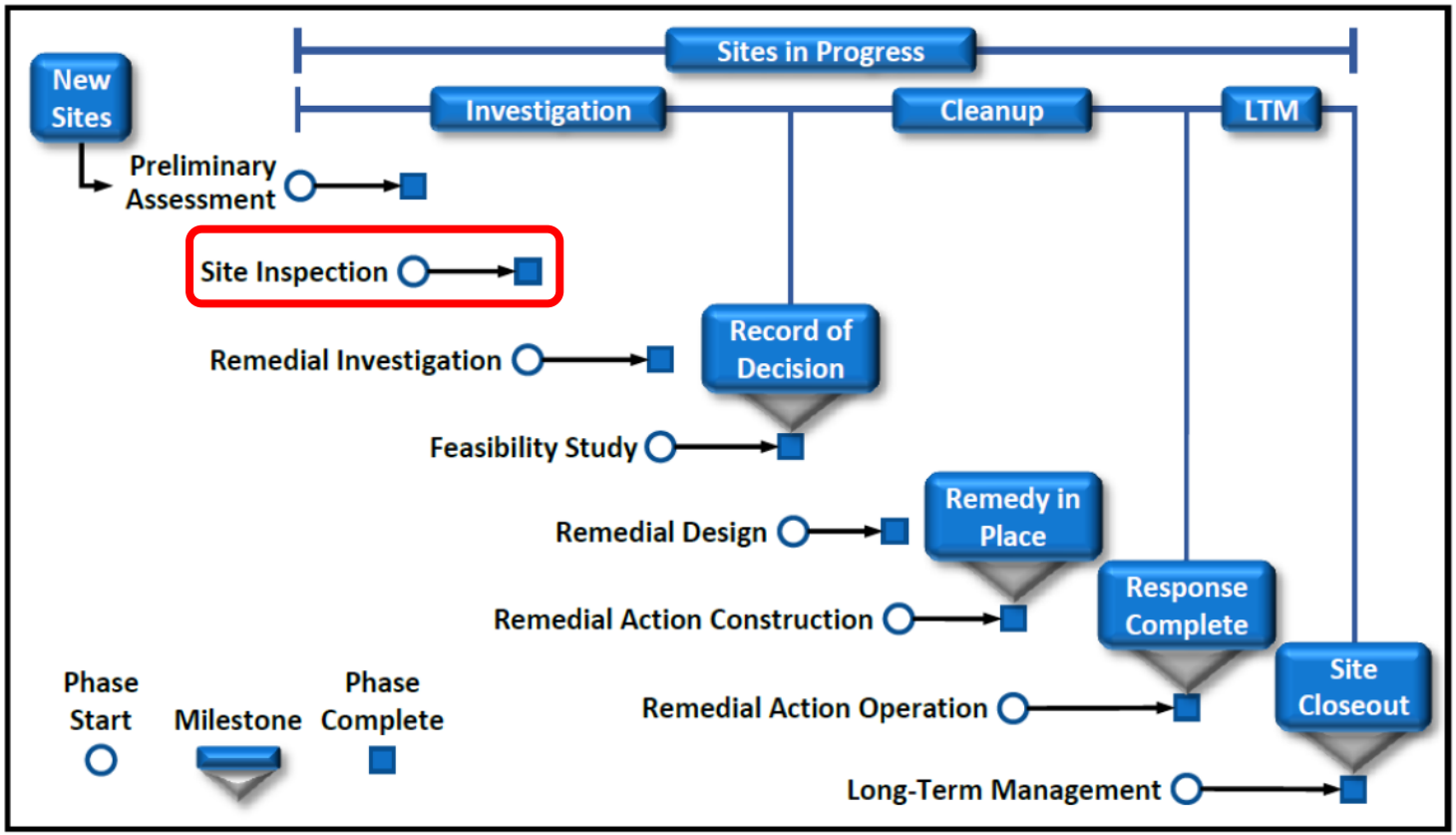
- Objective: To determine the potential for PFOS, PFOA, and PFBS (if present) in groundwater and surface water to migrate off-Base
- Findings:
  - In the stream north of the site, PFOA and PFOS were detected at concentrations exceeding human health screening levels throughout the stream.
  - In the stream south of the site, PFOS was detected at concentrations exceeding human health screening levels at the two most downgradient locations immediately downgradient of the wastewater treatment plant.
  - PFOS was identified as a constituent of potential concern for surface water.
  - Based on results of the staff gauges, both streams north and south of Site 10 are gaining streams indicating groundwater contributes to surface water.

SI Conclusions (cont.)

- Objective: To further characterize the nature of impacts of total petroleum hydrocarbons (TPH) in the surficial aquifer
  - From burning kerosene, diesel, gasoline, and jet propulsion fuel
- Findings:
  - TPH-Diesel Range Organics (DRO) and TPH-Gasoline Range Organics (GRO) were detected at concentrations exceeding the screening level in the surficial aquifer.
  - The TPH levels were consistent with previous levels of TPH detected in the shallow aquifer.

Path Forward

- Overall, Site 10 is recommended to be carried forward to the Remedial Investigation (RI) phase



Remedial Investigation

- RIs are designed to:
  - Collect enough data and information to make human health and ecological risk-based cleanup decisions that include:
    - Delineate nature and extent of PFAS
    - Identifying Applicable or Relevant and Appropriate Requirements (ARARs)
    - Risk assessments (Human and Ecological)
    - Support the feasibility study that looks at applicable cleanup technologies and cost estimates to remediate (soil, groundwater, surface water, and sediment that are above cleanup standards and goals)
- RIs are not designed to:
  - Conduct remediation/cleanup thru investigation: not every square inch requires investigation.
    - Investigation objectives help guide the investigation team (both Navy and Regulators) and define how much data is required to answer the question as well as how the data will be used to answer the question.

Remedial Investigation Process

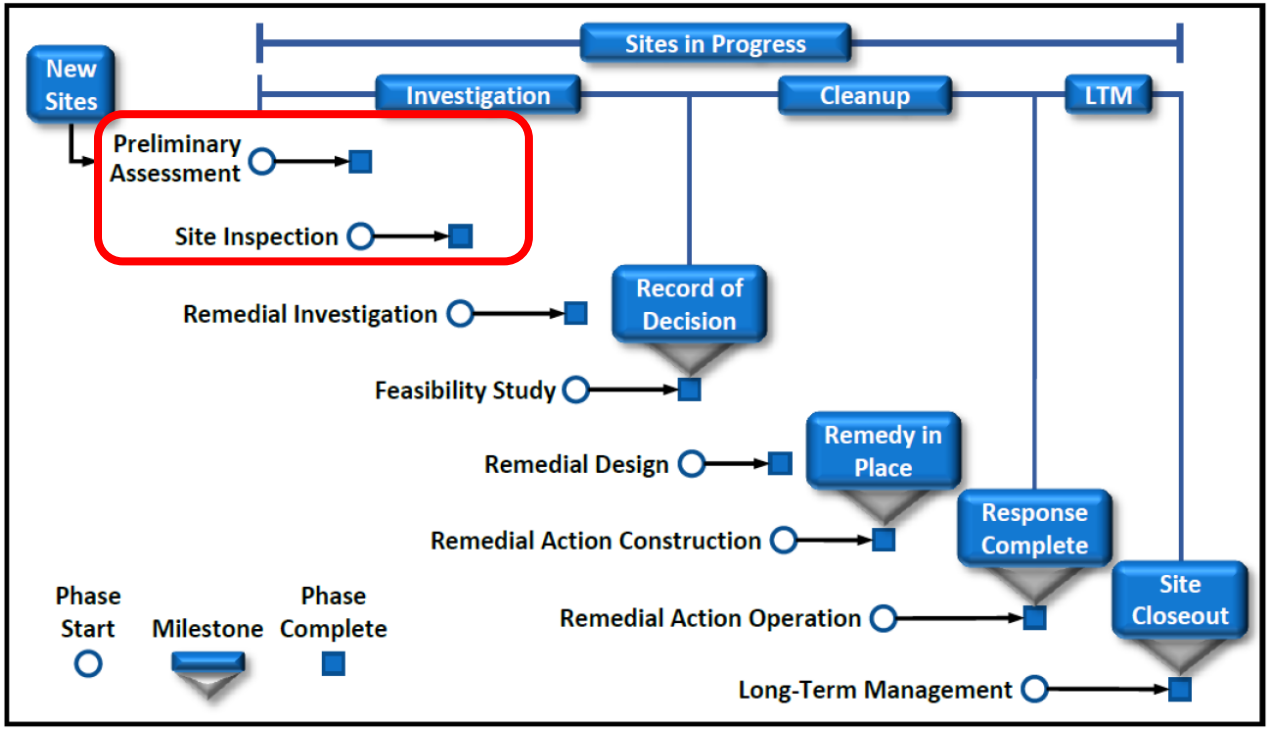
- RI phase consists of the following steps:
  - Workplan (UFP-SAP)
  - Fieldwork and data collection
  - Laboratory analysis and data management
  - Data analysis and risk assessment
  - Data gap fieldwork and data collection (if needed)
  - Reporting

Investigation Objectives

- Potential Soil Investigation Objectives
  - Define the extent of PFAS in soil
  - Determine the potential for soil impacts to leach into groundwater
  - Evaluate potential risks to receptors
- Potential Groundwater Investigation Objectives
  - Define the extent of PFAS in groundwater
  - Define the extent of fuel-related constituents (volatile organic compounds [VOCs] and semi-volatile organic compounds [SVOCs]) in the surficial aquifer
  - Define hydrogeologic properties to evaluate fate & transport of PFAS
  - Evaluate potential risks to receptors
- Potential Surface Water/Sediment Investigation Objectives
  - Define the extent of PFAS in surface water/sediment
  - Define the hydrologic understanding to evaluate fate and transport
  - Evaluate potential risks to receptors

Basewide PFAS Preliminary Assessment and Site Inspection

- Early PFAS efforts were focused on Site 10; however, the Navy is undertaking a Basewide Preliminary Assessment (PA) and Site Inspection (SI)
- Basewide PA:
  - Identifies potential PFAS source releases to the environment.
  - Typically involves desktop review of files, interviews, and a site visit
- Basewide SI:
  - Aims to determine, through sample collection and analysis, whether a release to the environment has occurred.
  - A workplan (UFP-SAP), fieldwork and reporting will be conducted at sites across the facility as identified in the PA.



Questions and Comments

- Open to RAB Members for discussion of "SI Conclusions and Path Forward" presentation.
- Questions from the public should be sent to "all co-hosts" in the Q&A box, to be addressed at the end of the meeting (as time allows.)

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Site 10 Interim Removal Action for Surface Water

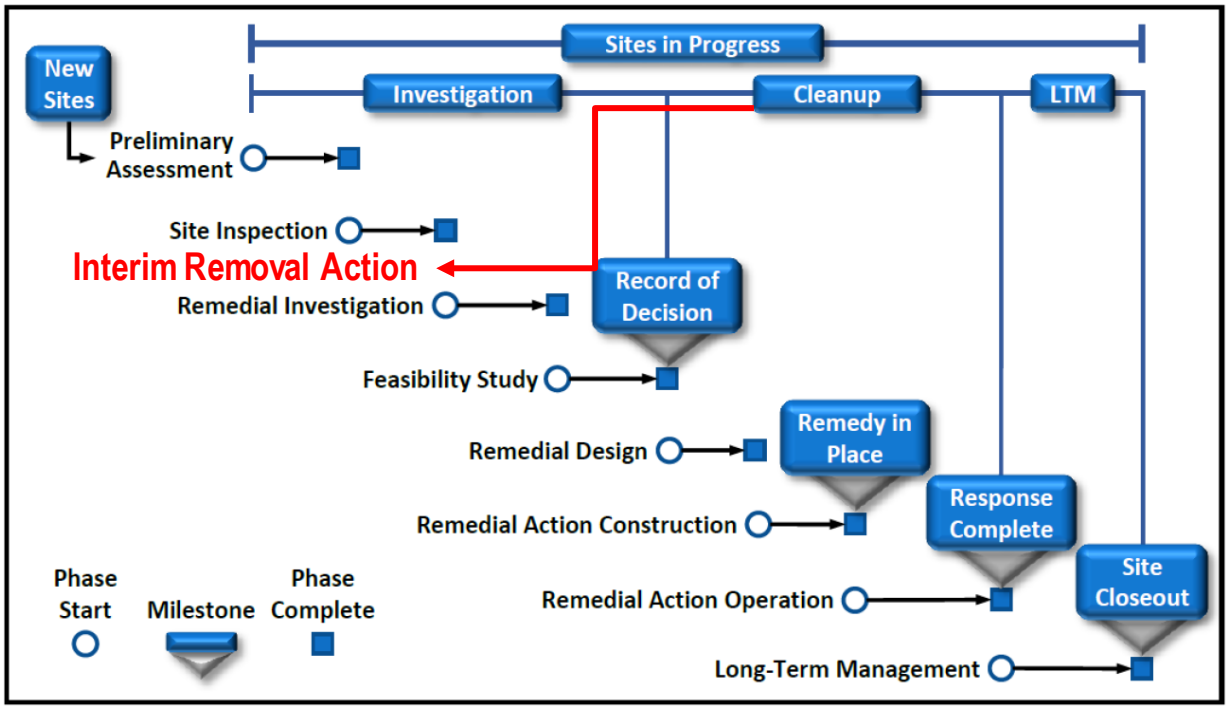
Andy Bogdanski - Jacobs

Ryan Mayer – NAVFAC Washington

Interim Removal Action

- Site Inspection sampling showed elevated PFAS concentrations in northern stream and an order of magnitude increase in PFAS concentrations in the downgradient portion of the southern stream.
- Follow-on sampling showed that the WWTP influent and effluent contained PFAS

- Based on the PFAS concentrations and the off-Base migration through surface water, **the Navy decided to implement an Interim Removal Action to reduce PFAS concentrations in surface water.**



Interim Removal Action

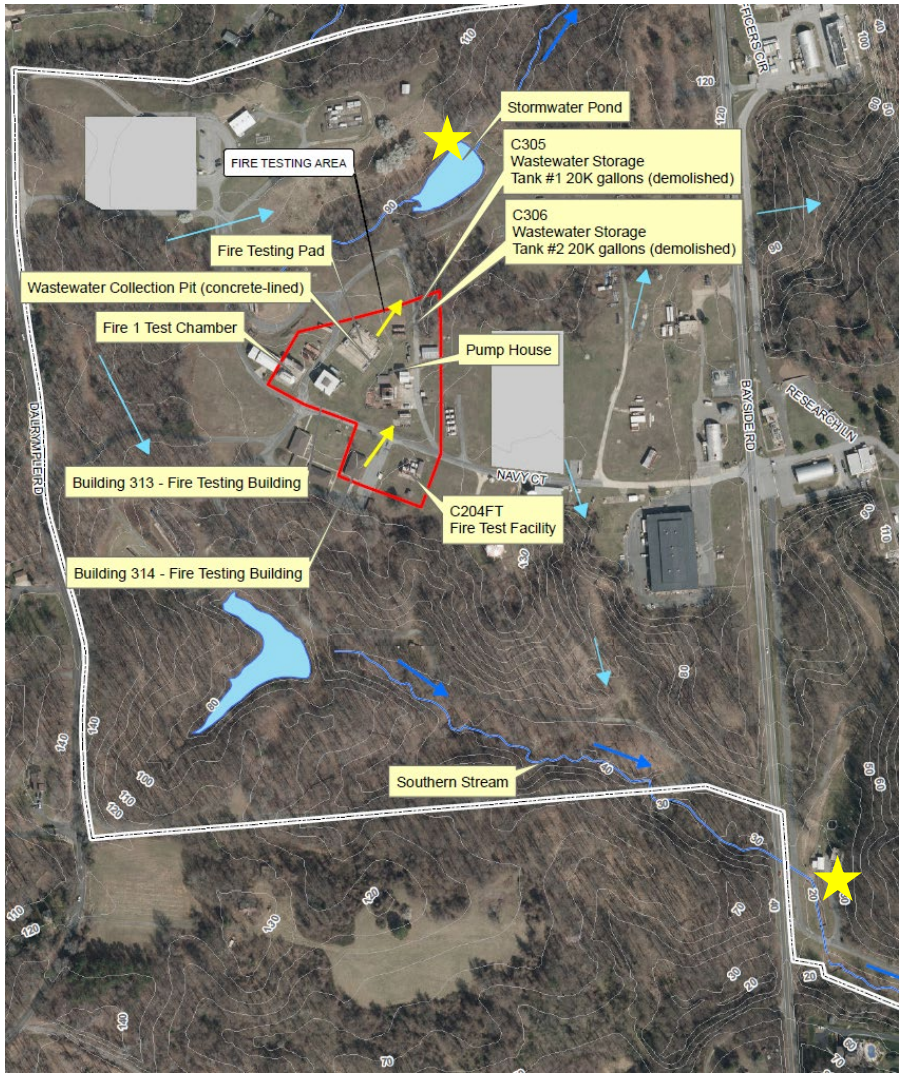
- Pre-Design Characterization
  - Determine stream and treatment plant flow rates
    - Aids in properly sizing treatment system components
    - Flow rates collected using data loggers and reviewing WWTP operation logs
  - Further characterize PFAS concentrations in streams, WWTP influent and effluent
    - Aids in understanding of PFAS concentrations overtime
    - Two additional rounds of PFAS sampling collected from streams/WWTP influent
  - Collect water quality data
    - Aids in PFAS treatment system process selections and design
    - One round of sampling from streams/WWTP influent

Interim Removal Action

- Basis of Design
  - Basis of design identifies the applicable regulations, treatment goals, treatment technology, treatment process, and other relevant considerations
  - Design will be iterative with 30% and 60% designs completed to allow for revisions and adjustments during the design process
  - Final design (100%) will be completed by the remedial action contractor prior to constructing the treatment systems
- Action Memorandum
  - Document that describes the removal action that will be implemented
    - 30-day public comment period for Action Memorandum
- Design Implementation
  - Remedial action contractor will finish design and construct the treatment systems

Interim Removal Action

- Two systems
  - North pond/stream: Intercept water from existing storm pond
  - WWTP: Intercept water from WWTP
- Treatment Process
  - Sand Filter
  - Granulated Activated Carbon
  - Bag Filter
  - Ion Exchange Resin



Questions and Comments

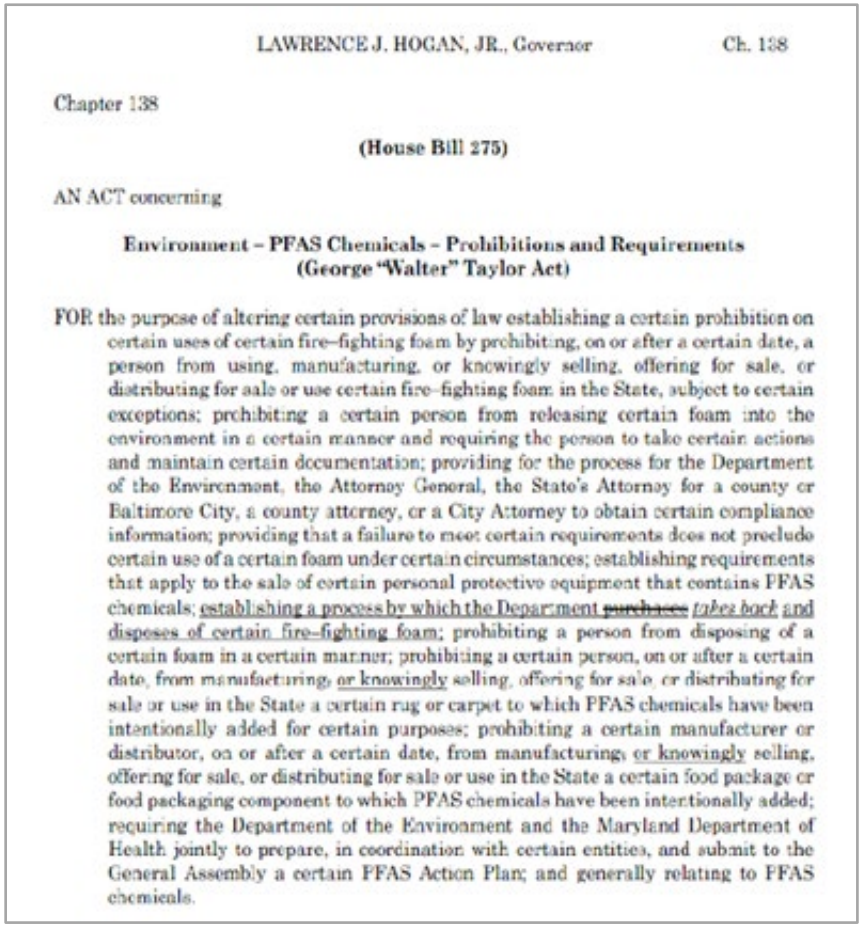
- Open to RAB Members for discussion of "Site 10 Interim Measures" presentation.
- Questions from the public should be sent to "all co-hosts" in the Q&A box, to be addressed at the end of the meeting (as time allows.)

Regulatory Updates

Peggy Williams and Mark Mank –
Maryland Department of the Environment

Maryland House Bill 275 (HB275)

(Became effective July 1, 2022)



LAWRENCE J. HOGAN, JR., Governor Ch. 138

Chapter 138

(House Bill 275)

AN ACT concerning

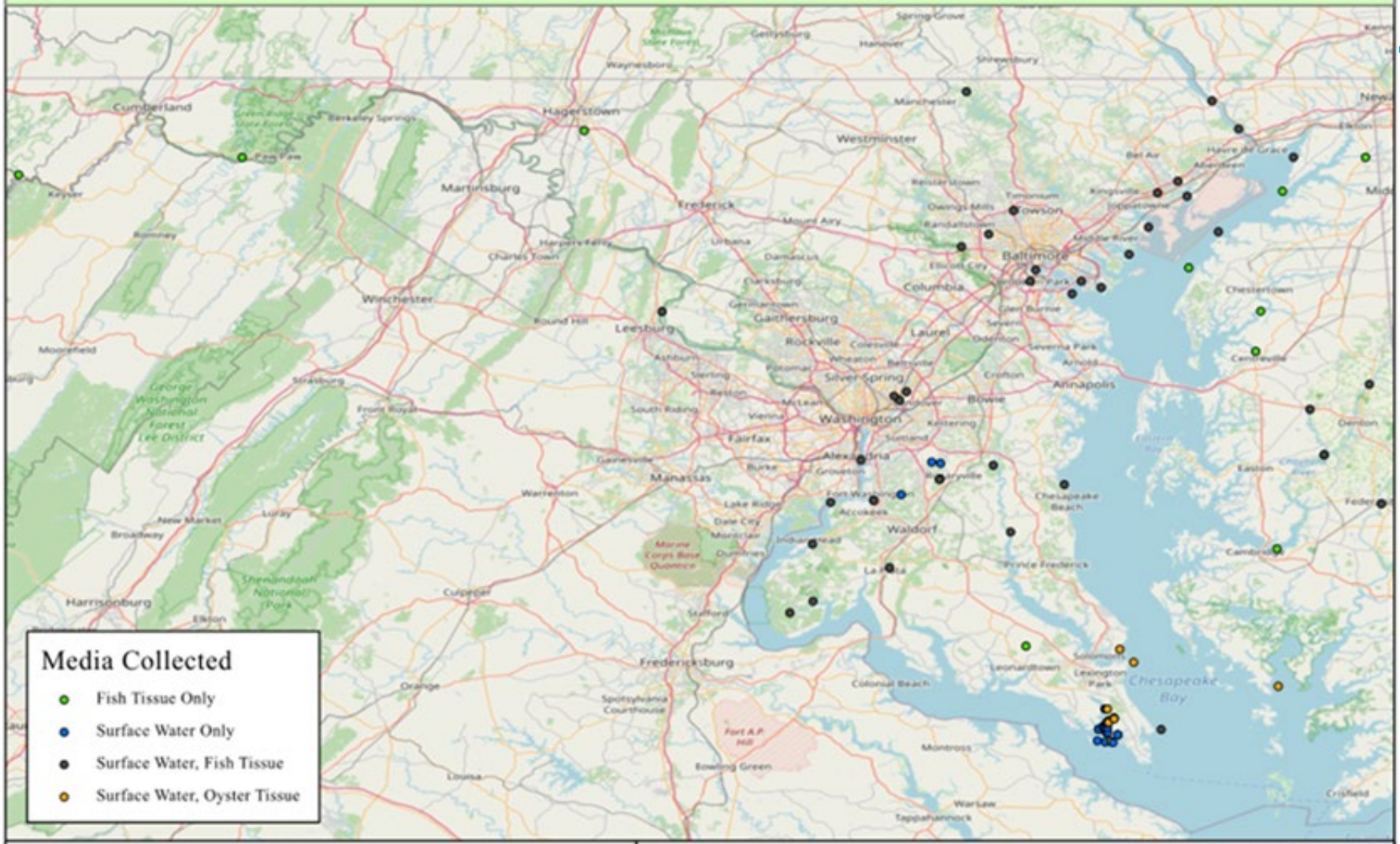
Environment – PFAS Chemicals – Prohibitions and Requirements
(George "Walter" Taylor Act)

FOR the purpose of altering certain provisions of law establishing a certain prohibition on certain uses of certain fire–fighting foam by prohibiting, on or after a certain date, a person from using, manufacturing, or knowingly selling, offering for sale, or distributing for sale or use certain fire–fighting foam in the State, subject to certain exceptions; prohibiting a certain person from releasing certain foam into the environment in a certain manner and requiring the person to take certain actions and maintain certain documentation; providing for the process for the Department of the Environment, the Attorney General, the State's Attorney for a county or Baltimore City, a county attorney, or a City Attorney to obtain certain compliance information; providing that a failure to meet certain requirements does not preclude certain use of a certain foam under certain circumstances; establishing requirements that apply to the sale of certain personal protective equipment that contains PFAS chemicals; establishing a process by which the Department ~~purchases~~ *takes back* and disposes of certain fire–fighting foam; prohibiting a person from disposing of a certain foam in a certain manner; prohibiting a certain person, on or after a certain date, from manufacturing, or knowingly selling, offering for sale, or distributing for sale or use in the State a certain rug or carpet to which PFAS chemicals have been intentionally added for certain purposes; prohibiting a certain manufacturer or distributor, on or after a certain date, from manufacturing, or knowingly selling, offering for sale, or distributing for sale or use in the State a certain food package or food packaging component to which PFAS chemicals have been intentionally added; requiring the Department of the Environment and the Maryland Department of Health jointly to prepare, in coordination with certain entities, and submit to the General Assembly a certain PFAS Action Plan; and generally relating to PFAS chemicals.

https://mgaleg.maryland.gov/2022RS/Chapters_noln/CH_138_hb0275e.pdf

- No incineration of PFAS-containing foam in Maryland
- No land disposal of PFAS-containing foam in Maryland
- Maryland will take back PFAS-containing foam from fire departments and plan for proper disposal of it
- A PFAS summary report to be provided to the General Assembly by December 2022
- MDE and DOH will draft a PFAS Action Plan by December 2023

PFAS Sampling Locations for Fish Tissue, Oyster, and Surface Water



Larry Hogan - Governor
Boyd K. Rutherford - Lt. Governor
Horacio Tablada - Secretary

N

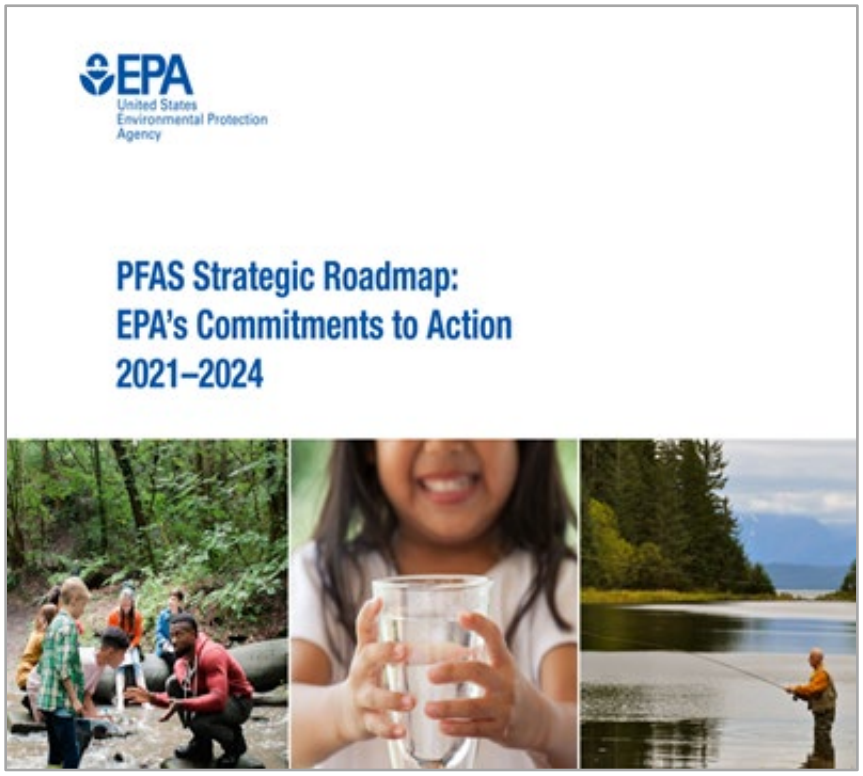
0 20 40 80 Miles

Scale: 1:1,500,000
Date: 07/20/2022

Fish Tissue - Status and Path Forward

- 2021 - Fish consumption advisory for PFAS issued in Piscataway Creek
- Complete fish tissue monitoring in 2022
- Use data to develop fish consumption advisories in other water bodies

EPA PFAS Roadmap (October 2021)



- **Research - Research and better understand PFAS**
- **Restrict - How to reduce our exposure to PFAS**
- **Remediate - New technologies to clean up PFAS from our environment**

https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

New EPA Health Advisories for PFAS (June 2022)

Summary of Four PFAS Health Advisories

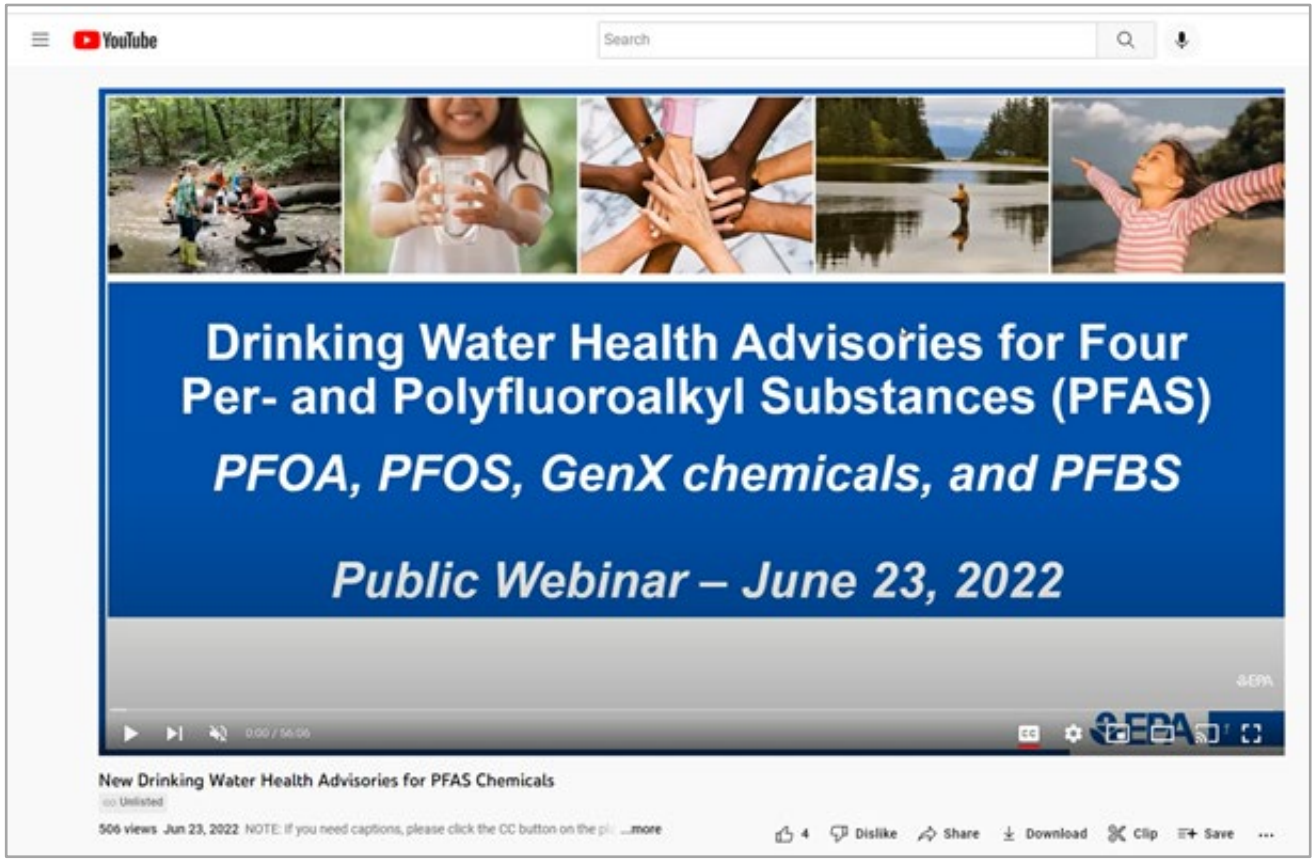
- **Interim Health Advisories**:
  - Perfluorooctanoic acid (PFOA)
  - Perfluorooctane sulfonate (PFOS)
- **Final Health Advisories**:
  - GenX chemicals (PFOA replacement)
  - Perfluorobutane sulfonic acid (PFBS) (PFOS replacement)
- For PFOA and PFOS, some negative health effects may occur at concentrations that are near zero and below our ability to detect at this time.
- The lower the level of these chemicals in drinking water, the lower the risk to public health.

Chemical	Health Advisory Value (ppt)	Minimum Reporting Level (ppt)
PFOA	0.004 (Interim)	4
PFOS	0.02 (Interim)	4
GenX Chemicals	10 (Final)	5
PFBS	2,000 (Final)	3

EPA United States Environmental Protection Agency — Office of Water

https://www.epa.gov/system/files/documents/2022-06/PFAS%20Health%20Advisories%20Public%20Webinar-%20FINAL%20FINAL.pdf

Video on New Health Advisories



Explains new PFAS Health Advisories and treatment technologies (same technologies being used in cleanup projects)

(https://www.youtube.com/watch?v=AGODLCl0QCg)

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Questions and Comments

Questions from Public Participants

Future Meeting Planning

- As per charter, plan to meet 2 times per year
  - Navy proposes the next meeting for May 2023
  - Wednesday evenings, 5:00-7:00 p.m.
- RAB agenda topics
  - If there are topics you'd like us to discuss, please communicate them to the RAB Co-Chairs:

    Navy Co-Chair – Ryan Mayer: ryan.e.mayer.civ@us.navy.mil

    Community Co-Chair – Kevin Britt: kev3125@yahoo.com

Websites for More Information

- **About RABs, including the RAB Rule Handbook:**

  http://www.denix.osd.mil/rab/home/

- **About the Navy's Environmental Restoration Program:**

  http://www.navfac.navy.mil/go/erb/

- **About the Environmental Restoration Program at NRL-CBD:**

  https://go.usa.gov/xSeKn (note: case-sensitive)

- **More about PFAS**

  https://www.navfac.navy.mil/products_and_services/ev/products_and_services/env_restoration/pfas_reading_room.html

  https://mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx

  www.epa.gov/pfas

  https://www.atsdr.cdc.gov/pfas/index.html