Naval Facilities Engineering Systems Command Southwest
Base Realignment and Closure
Program Management Office West
San Diego, California

FINAL
Restoration Advisory Board
Meeting Minutes, Meeting Number 212

Former Naval Station Treasure Island
San Francisco, California

May 15, 2023

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DCN: TRBW-0202-4856-0122

Prepared for:

Department of the Navy
Naval Facilities Engineering Systems Command Southwest
BRAC PMO West
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Contract Number: N62473-18-D-0202; Task Order No. N6247320F4856

FINAL
MEETING MINUTES
RESTORATION ADVISORY BOARD
FORMER NAVAL STATION TREASURE ISLAND
7 February 2023
Meeting Number 212

Virtual Meeting Number 12

Community Restoration Advisory Board (RAB) Members in attendance:
Alice Pilram, Nathan Brennan, Dale Smith, John Gee

Department of the Navy (Navy) and Regulatory Agency RAB Members in attendance:
Jeff White, San Francisco Bay Regional Water Quality Control Board (Water Board)
Nina Bacey, Department of Toxic Substances Control (DTSC)

Other Navy, Regulatory Staff, and Consultant Representatives in attendance:
Dave Clark, Navy Lead Remedial Project Manager
Janet Lear, Navy
Erica Spinelli, Navy
Marsha Maloof, Maloof & Associates, meeting facilitator
Bob Beck, Treasure Island Development Authority (TIDA)
Christine Niccoli, Court Reporter
Geoff Mordock, FleishmanHillard
Rick Wice, Battelle
Megan Kranz, Trevet-Bay West Joint Venture (Trevet-Bay West)
Maddison Laeber, Trevet-Bay West

Public Guests in attendance:
Carol Harvey, journalist
James Pepper, blogger

Welcome Remarks and Agenda Review

Marsha Maloof (facilitator) opened the February 2023 RAB meeting for Former Naval Station Treasure Island (NSTI), held virtually. Introductions were initiated and the agenda was reviewed (Attachment A).

New Business—Per- and Polyfluoroalkyl Substances (PFAS) Overview

Dave Clark (Navy) introduced the PFAS Overview presentation (Attachment B).

Mr. Clark began his presentation by stating that PFAS is considered an emerging contaminant and has not yet been listed as a hazardous substance by the United States Environmental Protection Agency (USEPA). The Department of Defense environmental program utilizes regulations from federal, state, and local sources. The environmental

program allows for flexibility in evaluating the findings of emerging contaminants before they are officially listed.

Mr. Clark explained that PFAS are a large group of substances found in multiple industrial consumer products. PFAS can increase a product's resistance to heat, stains, water, and grease. As such, PFAS can be found in nonstick cookware, building and construction materials, pesticides, pharmaceuticals, cleaning products, and more. One of the most common PFAS sources on military installations, including NSTI, is firefighting foam. Aqueous film-forming foam (AFFF) is a PFAS-containing firefighting foam used by the Department of Defense to contain and put out petroleum-based fires. Use of AFFF at NSTI began around 1969 and is known to be the primary source of PFAS contamination on NSTI. PFAS releases on the island occurred from around 1969 to 1997. This includes time periods at NSTI of AFFF use and incidental storage that took place after a new firefighting training facility was established.

PFAS are created in a laboratory, and their molecules are composed of hydrogen, oxygen, carbon, and fluorine. The chemical bond between carbon and fluorine is very strong, which means that they do not degrade easily in the environment. This is what poses the greatest challenge in the cleanup of PFAS. The Navy hopes to learn if any natural processes can be used in the cleanup process by determining how long it takes for PFAS to break down naturally. PFAS molecules can be captured using an activated carbon product, and scientists are working to determine ways to break down PFAS molecules once they are captured.

Mr. Clark explained that using the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) model for cleanup, a conceptual site model (CSM), will be created for PFAS. The purpose of the CSM is to determine the source of contamination, where it can move from its source, and how it gets there. At NSTI, the biggest source concern for PFAS is surface releases, because they can lead to PFAS entering the groundwater and making its way to the San Francisco Bay.

Mr. Clark emphasized that all drinking water on NSTI is provided by the San Francisco Public Utilities Commission, is sourced from the Hetch Hetchy regional water system, and is transported onto the island via a pipeline on the Bay Bridge. There is no exposure to PFAS in drinking water at NSTI.

Evaluating chemicals and working with Congress to list them as hazardous substances under CERCLA is the responsibility of the USEPA, the lead agency on research on PFAS. Other agencies provide input as well, which the Navy takes into consideration in its work with DTSC and the Water Board. Although PFAS are not listed as a hazardous substance, provisional recommendations are utilized by the Navy, and the Navy has made progress addressing PFAS through the CERCLA process.

As progress is made on PFAS, the Navy is tracking the policy guidance for all contaminants. Between 2014 and 2015, NSTI began sampling for PFAS at Site 6. This was also around the time when policies on PFAS drinking water health advisories were being established by the Navy. The Department of Defense made a strong commitment to addressing PFAS, as outlined in the timeline on slide 9.

Mr. Clark transitioned to discussing current PFAS investigations at NSTI. During the early evaluation of PFAS at NSTI, Site 6 stood out because it was a historical firefighting training facility. PFAS compounds were detected in soil samples collected in 2015 and groundwater samples collected in 2017 and 2020. Currently, Site 6 is in the remedial investigation phase of CERCLA. This allows the Navy to expand and characterize the nature and extent of PFAS at Site 6. The draft remedial investigation report is scheduled to be submitted in 2023 and will characterize the lateral and vertical extend of PFAS at Site 6 and include calculations for human health risk scenarios.

Mr. Clark discussed the other supporting activities that will take place in 2023. The Navy plans to conduct an ambient sample collection event to determine the statistical background concentrations for PFAS in the bay. A watershed contamination source document will also be prepared to evaluate potential Navy and non-Navy PFAS sources and a shoreline pilot study will be conducted to test the feasibility of PlumeStop technology and granulated activated carbon to treat PFAS.

The San Francisco Estuary Institute has also been collecting samples to evaluate for the presence of PFAS in the bay. It has sampled in recent years and confirmed that PFAS is present in the bay.

PlumeStop has been discussed as a possible permeable barrier that may be effective in capturing PFAS. The shoreline pilot study will test the feasibility of a PlumeStop in capturing PFAS at Site 6.

Mr. Clark discussed the basewide PFAS activities completed to date and those that are upcoming. A 2020 basewide preliminary assessment (PA) evaluated 89 areas of interest (AOIs). Based on this assessment, 12 AOIs were identified for further investigation in the site inspection (SI) phase of CERCLA. The results from the PA will be published in Spring 2023.

Mr. Clark referred to the flowchart presented on slide 19 and discussed upcoming work at Site 6 and basewide. The path forward for basewide PFAS investigations has yet to be determined. The Navy will need to collect more information at the identified AOIs in a supplement to the SI.

Mr. Clark opened the floor to questions.

Nathan Brennan (Community RAB Member) asked if the Navy attends the monthly PFAS meetings with DTSC and the Water Board. Mr. Clark confirmed the Navy tries to meet monthly with DTSC and the Water Board to specifically discuss PFAS.

Dale Smith (Community RAB Member) asked why the dry-cleaning facility at Building 99 was not discussed as a potential source of PFAS. Mr. Clark explained that Site 24 is being evaluated as part of the basewide PA and SI. She also asked if the USEPA has approved project screening levels and residential screening levels for PFAS. Mr. Clark stated the Navy is tracking all the standards and screening levels provided by the USEPA and will use the most current screening levels at the time of the SI and RI phases. Ms. Smith asked if the Navy is monitoring perfluorobutane sulfonate (PFBS). Mr. Clark confirmed that PFBS is one of the PFAS compounds that is analyzed for in samples. Ms. Smith asked why the background sampling set is only 20 samples. Mr. Clark explained that 20 samples is a

starting point and that after discussion with regulatory agencies the final work plan will identify how many data points the Navy will be sampling.

Ms. Smith asked how long PlumeStop has been in use and what USEPA has to say about its degradation products. Mr. Clark said he does not know how long it's been in use and suggested consulting the PlumeStop website for more information. He explained that degradation products are not a byproduct of PlumeStop, which is a barrier that is attempts to prevent PFAS from moving to the bay. Ms. Smith asked for the location of Paradise Cove. Mr. Clark replied that it is in the northern area of Tiburon in Marin County.

James Pepper (blogger) stated that the Navy needs to investigate locations where outflow pipes discharge to the bay. He also suggested looking into the sewage treatment plant as a possible PFAS source. Mr. Clark confirmed that Site 7 was evaluated as part of the basewide PA and SI but explained that the fires in this area predate the actual use of PFAS.

Carol Harvey (journalist) asked if the firefighting foam can infiltrate groundwater outside the pipes. Mr. Clark explained that drinking water may be pushed out of a leaking drinking water pipe since they are under positive pressure. Ms. Harvey asked if PFAS degrades the human immune system. Mr. Clark confirmed that studies are evaluating PFAS health effects.

New Business—BRAC Cleanup Team (BCT) Update

Nina Bacey (DTSC) stated that several documents are final since the previous RAB meeting. This includes the 1400 Series Radiological Site Investigation Report, Site 12 Non-Solid Waste Disposal Area (SWDA) Interim Remedial Action Completion Report, and Site 12 Radiological Conceptual Site Model for non-SWDA areas.

Ms. Bacey received the 2021 Basewide Groundwater and Soil Gas Monitoring Plan and the Site 24 Explanation of Significant Differences in late-December 2022 and prepared comments. She received the 2023 Basewide Monitoring Work Plan for soil gas and groundwater monitoring and the Phase IV Construction Summary Report for Site 12 SWDA Westside in January and prepared comments.

Jeff White (Water Board) said that he reviewed the same documents as Ms. Bacey. He has been focused on the Navy's ambient PFAS sampling plan. This sampling will determine ambient PFAS concentrations in the San Francisco Bay resulting from general contamination not necessarily caused by the Navy. He hopes to receive Navy comments on the plan next week. He is working on comments on the 2023 Basewide Monitoring Work Plan, which the Navy needs to begin fieldwork for the first semiannual sampling event. He is also working on the Site 6 closure request for several underground storage tanks and one aboveground storage tank. He expects to provide his comments to the Navy on the aforementioned documents within a month or sooner.

Old Business—Community Comments

Ms. Harvey followed up on her previous question concerning the existence of a discernable PFAS plume anywhere on TI. Mr. Clark said that there is a plume at Site 6 with a clear source and concentrations that decrease in the direction of groundwater flow. He

explained that this has allowed the Navy to determine the historical use of the area and the source of the plume. The Navy has accelerated the PFAS program to reach the remedial investigation phase and is now conducting a pilot study evaluating how the flow of PFAS to the bay can be stopped or mitigated. The remedial investigation will also lead to a record of decision, which will result in a decision on the remedy to be implemented.

Ms. Harvey asked if Site 12 residents will have to move before or after the Site 6 and Site 12 cleanup is complete. Mr. Clark responded that he cannot comment on anything related to leasing, but he has some knowledge of the timeline. The remedy in place will likely happen at Site 6 before it does at Site 12. He is hoping to restart the feasibility study process at Site 12 in March 2023, but Site 12 is larger and more complex than Site 6 and the remedy may require multiple aspects of the remedy. Once the remedy in place is complete, the Navy can prepare a Finding of Suitability to Transfer document. Overall, the PFAS remedy that will likely be put in place for Site 6, will not be sufficient as implemented for the more complex conditions at Site 12. Site 6 has little connection to the leasing in Site 12, and he cannot speak to when residents will be moved out of Site 12.

Mr. Pepper said that this is moot because Site 12 was a chemical warfare training base and cannot, by law, be transferred to the State of California or the City of San Francisco. The Navy can, however, keep the property and transfer it to the Coast Guard. He requested a manifest of all chemicals and radiological objects found on NSTI.

Old Business—RAB Meeting Minutes Approval Meeting No. 211

Ms. Maloof asked for comments on the November 2022 RAB meeting minutes.

Ms. Smith recommended changing “via” in the second sentence of page 2 to “in.”

Mr. Brennan moved to accept the minutes as amended. Mr. Gee seconded the motion. The November 2022 meeting minutes were approved.

Action Items from November 2022 RAB Meeting

There were no action items from the November 2022 RAB meeting.

RAB Discussion Items, Co-Chair Announcements, and Future Agenda Items

Mr. Clark stated that a new BRAC Environmental Coordinator has not been hired and he is unsure of when it will happen.

Mr. Clark said that the next RAB meeting will be held virtually in May. The following RAB meeting in August will be in person at Building 1 on NSTI. He will consider holding a hybrid meeting for people to attend virtually as well.

Mr. Clark requested presentation topic suggestions from the RAB.

Ms. Smith asked what PFAS documents are upcoming. Mr. Clark said that the SI report and the Site 6 remedial investigation report are expected to go out in draft form during the month of February.

Ms. Harvey asked if the presentation materials from the meeting will be available online or if they can be provided to her. Mr. Clark said that he will look into it after the meeting.

Adjournment

The meeting adjourned at 8:50 p.m.

7 February 2023 RAB Meeting Handouts

- Attachment A: NSTI RAB Meeting No. 212 Agenda
- Attachment B: PFAS Overview Presentation

Attachment A. NAVSTA TI RAB Meeting No. 212 Agenda

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ENVIRONMENTAL RESTORATION ADVISORY BOARD MEETING AGENDA

FORMER NAVAL STATION TREASURE ISLAND

Tuesday, 7 February 2023 at 7:00pm

Join by computer Download the Microsoft Teams App to your desktop, phone, or tablet and use Meeting Link:

Click here to join the meeting

Meeting ID: 266 191 804 787

Password: 83Kad3

Or Click or Type in: https://tinyurl.com/TI-RAB-FEB-2023

Join by telephone Toll Free: 1-833-258-6146, Enter the meeting ID: 282 621 272#

MEETING NO. 212

I. WELCOME REMARKS AND AGENDA REVIEW

7:00 – 7:05 **Welcome, Introductions**
Marsha Maloof, Meeting Facilitator

7:05 – 7:10 **Meeting Guidelines and Agenda Review**
Marsha Maloof, Meeting Facilitator
Alice Pilram, Community Co-Chair

II. NEW BUSINESS

7:10 – 8:00 **Per- and Polyfluoroalkyl Substances (PFAS) Overview**
David Clark, Lead Remedial Project Manager
Q&A: RAB
Q&A: Community

8:00 – 8:15 **Break**

8:15 – 8:25 **BRAC Cleanup Team Update**
Juanita Bacey, Department of Toxic Substances Control
Jeff White, Regional Water Board

III. OLD BUSINESS

8:25 – 8:40 **Community Comments**
Marsha Maloof, Meeting Facilitator
Q&A: RAB
Q&A: Community

8:40 – 8:45 **RAB Meeting Minutes Approval Meeting No. 211**
David Clark, Lead Remedial Project Manager

8:45 – 8:50 **Action Items from November 2022 RAB Meeting**
David Clark, Lead Remedial Project Manager

8:50 – 8:55 **Co-Chair Announcements and Future Agenda Items**
Alice Pilram, Community Co-Chair and David Clark, Lead Remedial Project Manager

9:00 **Adjourn**

The Next RAB Meeting will be held 9 May 2023 at 7:00pm

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Attachment B. PFAS Overview Presentation

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Naval Facilities Engineering Systems Command

PFAS Overview

Treasure Island RAB

07 February 2023

1

What are Per-and Polyfluoroalkyl Substances (aka PFAS)?

- Per- and polyfluoroalkyl substances (PFAS) are a class of man-made chemicals found in many consumer products such as stain-resistant textiles, nonstick cookware, food packaging, cleaning products, cosmetics, and some firefighting foams such as aqueous film forming foam (AFFF). These chemicals are useful for resisting heat, stains, grease, and water.
- DON's most common operational use of PFAS has been associated with AFFF used primarily for firefighting, including historic training and equipment testing.
- On, Treasure Island, firefighting foam is most common source of PFAS impacts.

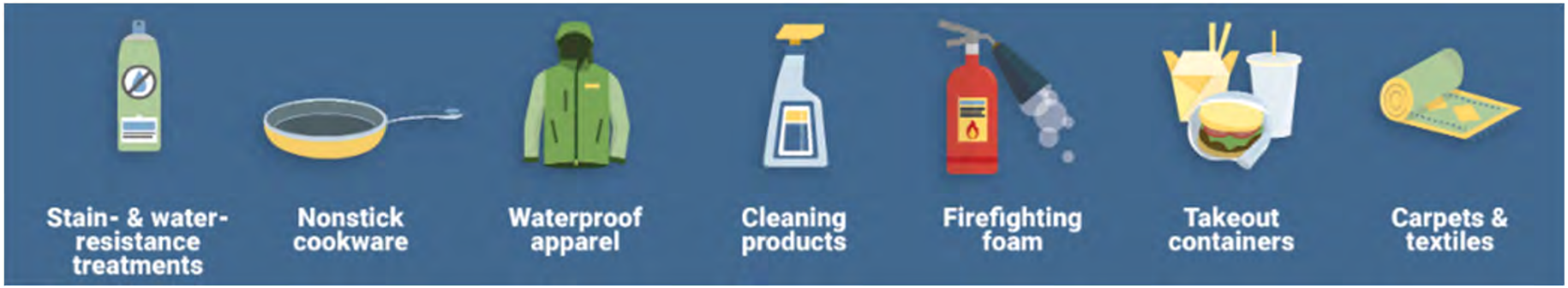


Image Source: Department of Ecology, State of Washington

PFAS on a Molecular Level

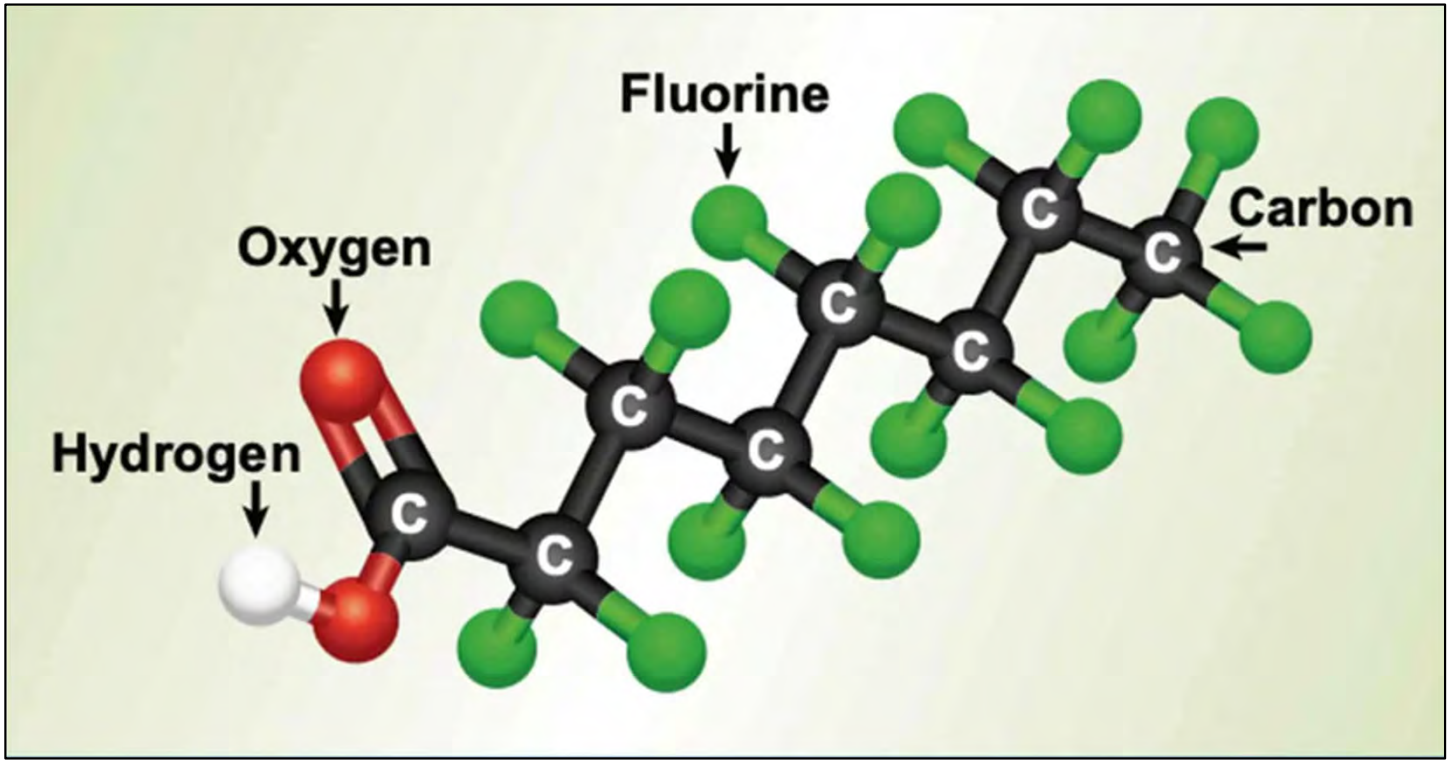


Image Source: National Institute of Environmental Health Sciences, March 2019

Possible Routes of PFAS to the Environment

- **Spills during the following activities are the primary sources for PFAS entering our groundwater/surface water**
  - ***Drinking water at Treasure Island comes from off-island***
  - **Firefighting Activities using Firefighting Foams**
  - **Industrial Sites**
  - **Wastewater Treatment Plants/Biosolids**

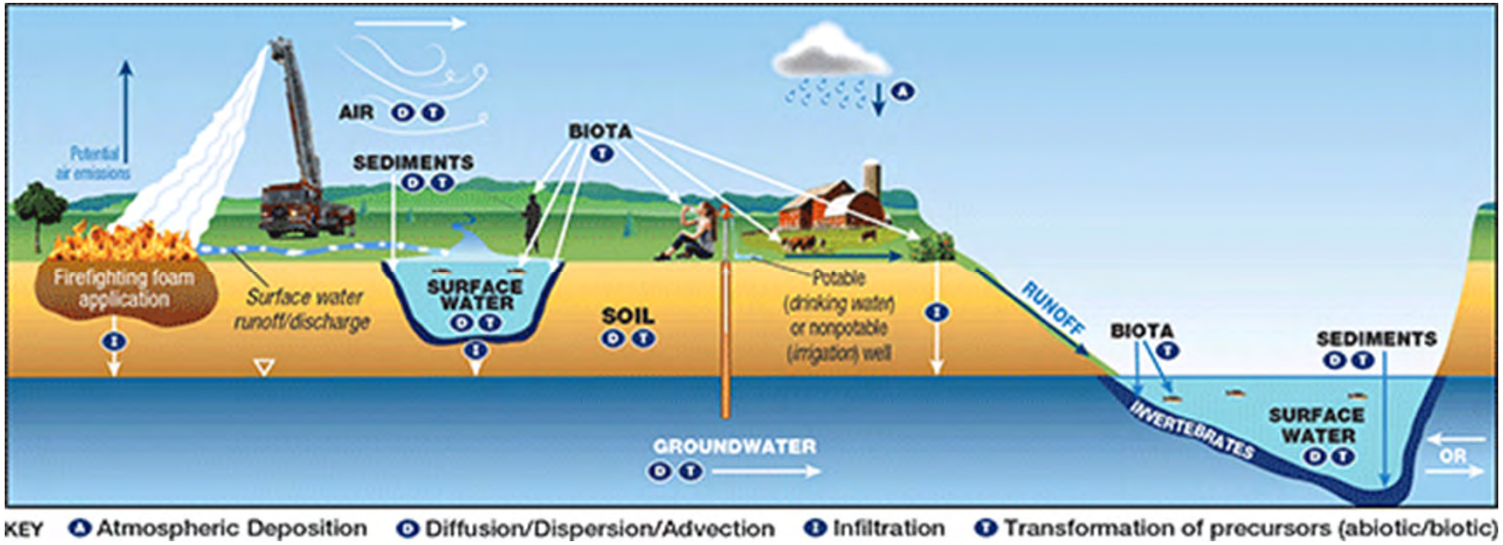
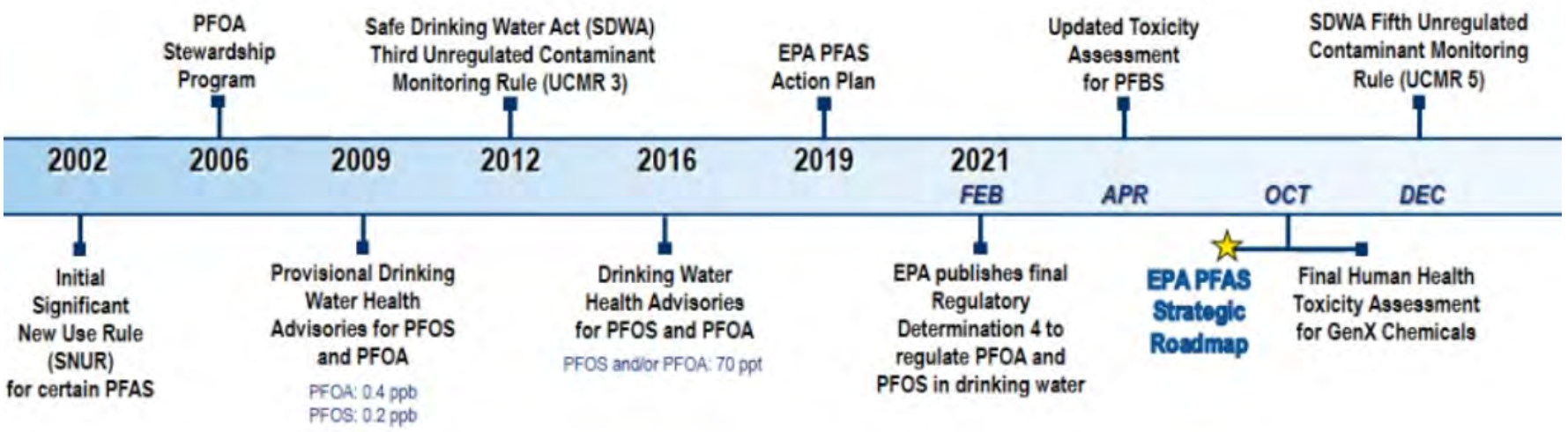


Image Source: ITRC

Treasure Island Drinking Water Provided by SFPUC

- **Treasure Island Residents are not exposed to PFAS via drinking water.**
- **Drinking water is provided by San Francisco Public Utilities Commission via pipeline from Hetch Hetchy Reservoir**

History of EPA Milestones Addressing PFAS as an Emerging Chemical of Concern



Primary goal is to determine what chemicals will be listed as hazardous substances.

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Tracking DON/DoD Response to PFAS – 2014-2019

Policy	Date
Department of the Navy, Office of the Assistant Secretary (Environment) [DASN (E)] Policy Memo - Policy requiring on-base drinking water sampling for PFOA and PFOS for bases where groundwater was used as drinking water	October 21, 2014
Chief of Naval Operations (CNO) Policy Memo - Specified that if levels of PFOS and/or PFOA in drinking water exceeded the current EPA health advisory, then alternative drinking water must be supplied	September 14, 2015
Assistant Secretary of Defense (ASD) Policy Memorandum - Specified that decisions regarding drinking water should be based on the lifetime health advisories issued by EPA's Office of Water in May 2016	June 10, 2016
DASN (E) Policy Memo - Expanded the sampling PFOA and PFOS at all Navy installations where such sampling was not previously completed under EPA's UCMR3	June 14, 2016
DASN (E) Policy Memorandum -This policy defines the DON's intention to remove, dispose, and replace legacy AFFF that contains PFOS and/or PFOA	June 17, 2016
DASN (E) Policy Memo - Identify and prioritize sites for investigation if drinking water resources, on- or off-installation, are thought to be vulnerable to PFOA/PFOS impacts	June 20, 2016
Secretary of Defense Memorandum - Established a PFAS task force to ensure a coordinated, aggressive, and holistic approach to DoD-wide efforts to proactively address PFAS	July 23, 2019

Tracking DON/DoD Response to PFAS Continued – 2019-2020

Policy	Date
ASD Memorandum – Provided clarification of toxicity values for PFOA and PFOS	October 15, 2019
ASD Memorandum – "*Per- and Polyfluoroalkyl Substances Cleanup Cost Reporting*", Identifies new reporting requirement for funding data associated with investigating and cleaning up PFAS	October 15, 2019
ASD Memorandum – Revised quarterly progress reporting requirements for installations with known or suspected PFAS releases.	October 23, 2019
ASD Memorandum – Conduct community engagement with respect to PFAS issues	November 22, 2019
ASD Memorandum – *"Establishing a Consistent Methodology for the Analysis of Per-and Polyfluoroalkyl Substances in Media Other than Drinking Water"*, Guidance on use of Draft Method 1633	November 22, 2019
ASD Memorandum – Establishes annual reporting requirements for AFFF usage or spills	January 13, 2020
Marine Corps Bulletin 11000 – Assigns responsibility for a wide range of PFAS-related issues in the USMC	February 20, 2020
ASD Memorandum – Requirements for PFAS drinking water sampling on DoD installations where DoD is the drinking water purveyor	March 2, 2020

ASD = Assistant Secretary of Defense

Tracking DON/DoD Response to PFAS Continued - 2021-2022

Policy	Date
ASD Memorandum – *"Department of Defense Guidance on Using State Per- and Polyfluoroalkyl Substances Drinking Water Standards in Comprehensive Environmental Response, Compensation, and Liability Act Removal Actions"*	December 22, 2021
ASD Memorandum – *"Response and Reporting of Aqueous Film Forming Foam Usage, and Accidental Releases/Spills on Military Installations and National Guard Facilities"*	April 7, 2022
ASD Memorandum – *"Public Disclosure of Department of Defense Testing Results of Per- and Polyfluoroalkyl Substances in Drinking Water Within a Covered Area"*	April 26, 2022
ASD Memorandum – *"Temporary Prohibition on Incineration of Materials Containing Per- and Polyfluoroalkyl Substances (PFAS)"* Prohibits the incineration of DoD PFAS materials after April 26, 2022	April 26, 2022
ASD Memorandum – *"Addressing Per- and Polyfluoroalkyl Substances at Base Realignment and Closure Locations"* DoD Components will follow a consistent approach, based on risk, under CERCLA, the National Contingency Plan (NCP), and the DERP, as well as DoD PFAS guidance, to investigate and implement appropriate response actions for PFAS releases at DoD facilities, including BRAC locations, based on risk	May 11, 2022

Full list of DoD/DON PFAS Polices can be found at https://denix.osd.mil/dod-pfas/osd-policies/
https://www.secnav.navy.mil/eie/Pages/DON-PFAS-POLICIES-AND-GUIDANCE.aspx

PFAS Investigation at Treasure Island

Image Source: SPUR

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PFAS Focus at TI

- **Site 6 - first site investigated - 2014**
- **Basewide investigation ongoing**
  - **Evaluation of onshore pathways**
    - Except drinking water as all water is piped onto Treasure Island
  - **Potential Eco Risk to Nearshore Environment**

Treasure Island – Site 6

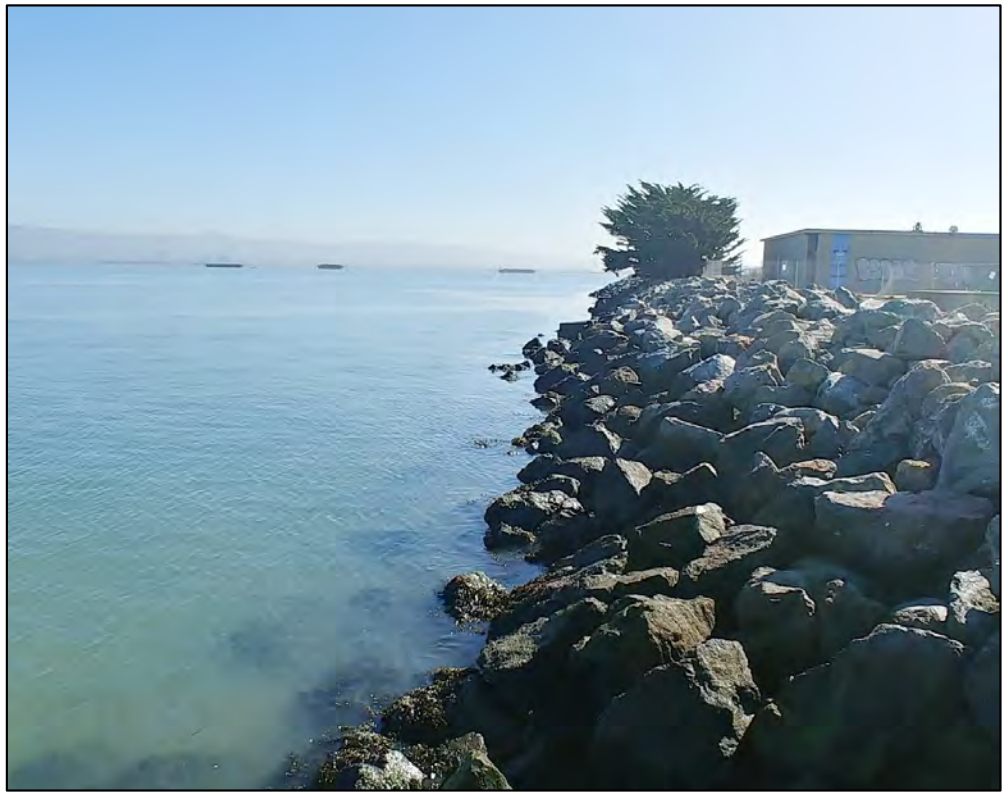
- **Former Fire Fighting Training School 50 Years**
- **Training overlapped with Navy's use of AFFF**
- **PFAS chemicals identified in soil in 2015 and groundwater in 2017 & 2020**
- **First area on TI investigated for PFAS. Most advanced in the CERCLA process (RI)**

Site 6 Aerial

Training Facility Buildings (demolished)

PFAS Site 6 Remedial Investigation

- **2023 - Draft PFAS Remedial Investigation to be Issued**
  - **Characterization of PFAS at Site 6**
    - **Soil and Groundwater Data**
  - **Preliminary Human Health Risk Assessment**
- **Recommendations to include:**
  - **Supplemental RI for Nearshore**
  - **Supplemental risk assessment**



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PFAS Supporting Tasks - 2023

- **Background Ambient Sample Collection**
  - **Minimum of 20 Samples**
  - **Evaluate Data Distribution**
    - SFEI (San Francisco Estuary Institute)
    - Historical TI nearshore
    - Paradise Cove
- **Watershed Contamination Source Document**
  - **Evaluate of potential Navy and non-Navy PFAS sources**
- **Shoreline Pilot Study**
  - **Plume Stop technology**
  - **Granulated Activated Carbon**

Coordination with San Francisco Estuary Institute & The Aquatic Science Center

- **SFEI monitors for the presence of PFAS in Sediment, Surface Water, Fish, and Marine Mammals**
  - **Sediment**
  - **Surface Water**
  - **Fish**
  - **Marine Mammals**

Image Source: SFEI, 2022 RMP Annual Meeting

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Remediation Technology – Capture of PFAS

Image Source: Regenesis

Remediation Technology - Continued

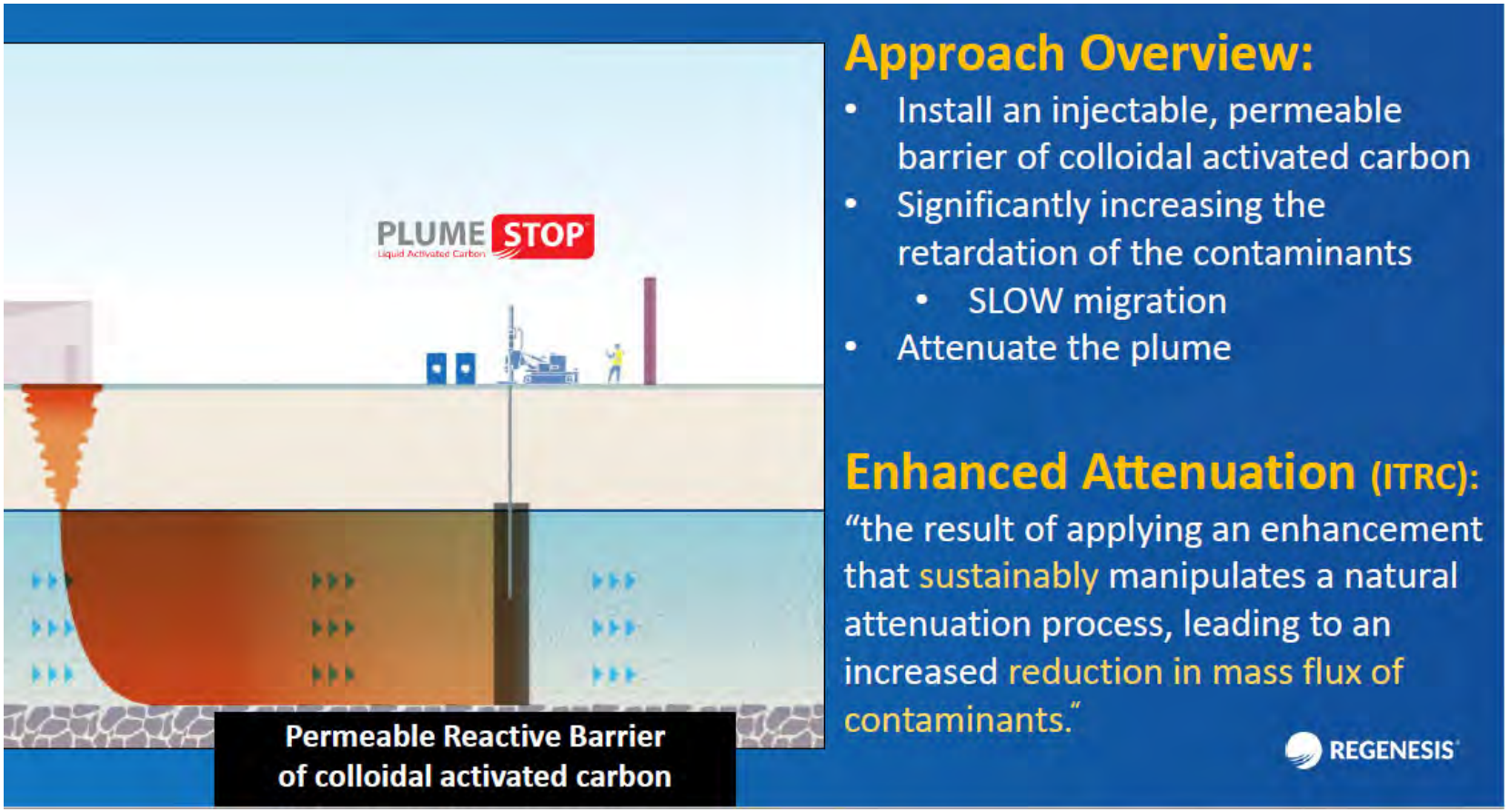
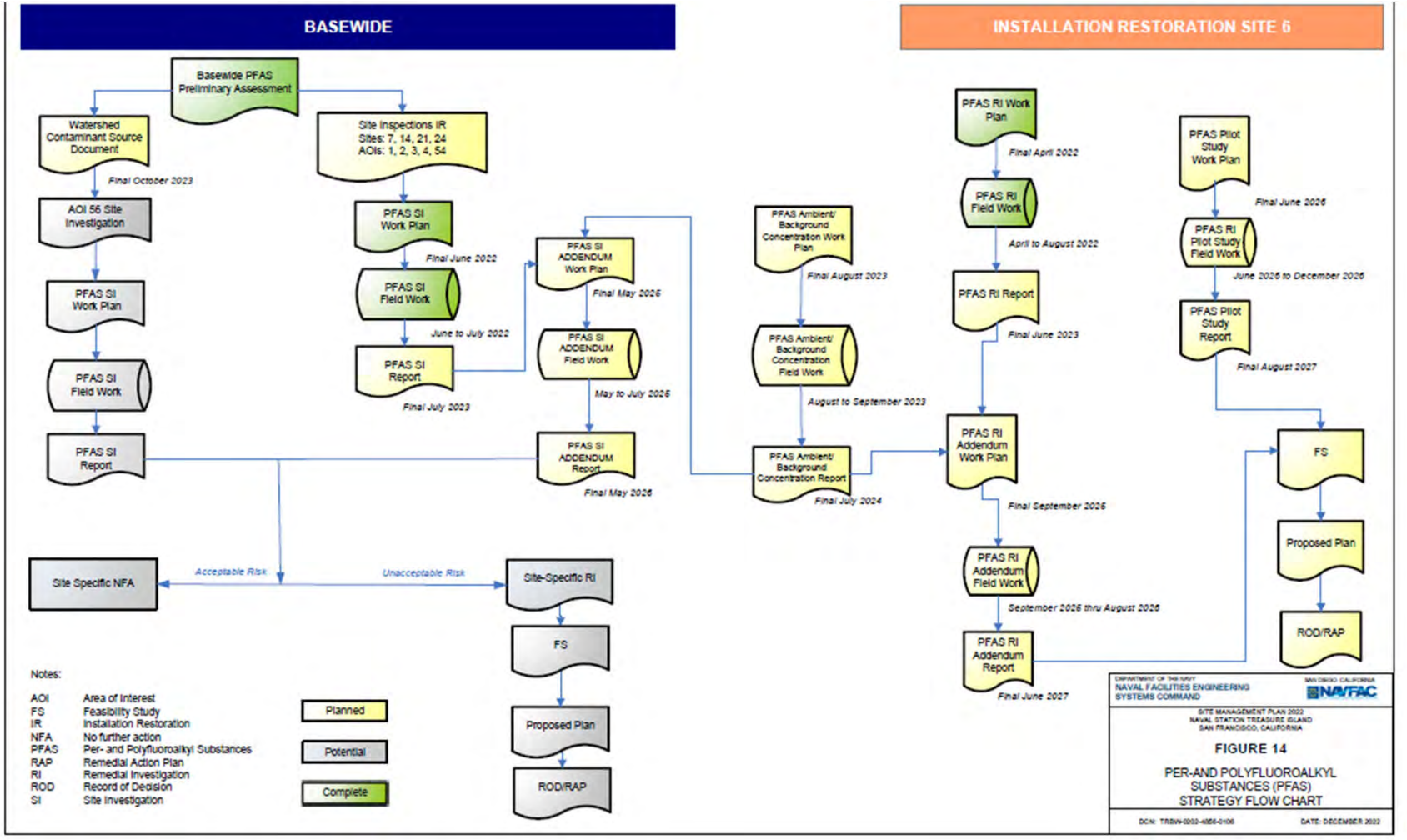


Image Source: Regenesis

Basewide PFAS

- **2020 – Basewide PA evaluating 89 Areas Completed**
  - **Areas with potential PFAS based on previous activities**
  - **Areas requiring further investigation**
  - **Areas with no release of PFAS**
- **12 of 89 Areas Identified for further investigation in an SI**
  - **2022 Draft results and findings set to be published in Spring 2023**

PFAS Path Forward – Following the Process



Questions?