Restoration Advisory Board Meeting Minutes, Naval Research Laboratory – Chesapeake Bay Detachment, Chesapeake Beach, Maryland

MEETING DATE:	October 18, 2023
LOCATION:	Northeast Community Center, 4075 Gordon Stinnett Avenue, Chesapeake Beach, Maryland 20732

Note: This meeting summary is based on informal notes taken at the meeting. It is not intended as a verbatim transcript. Rather, it is intended to summarize the overall discussions.

Welcome and Introductions

Ryan Mayer from Naval Facilities Engineering Systems Command (NAVFAC) – Washington introduced himself as the Department of the Navy (Navy) Remedial Project Manager (RPM) for Naval Research Laboratory – Chesapeake Bay Detachment (NRL-CBD). He welcomed the Restoration Advisory Board (RAB) members and the public to the seventh RAB meeting for NRL-CBD and informed the attendees that the meeting would be recorded via audio to aid in preparation of the meeting minutes.

Ryan introduced Amy Brand (Jacobs), Andy Bogdanski (Jacobs), Peggy Williams (Maryland Department of the Environment [MDE]), Ira May (MDE), Laura Lampshire (Jacobs), Sarah-Jane O'Brien (Jacobs), Windy Campbell (Jacobs), Jennifer Cheswick (NRL) and Kevin Britt (RAB Community Co-Chair). A full list of attendees is provided in **Table 1**.

Ryan went through the introductions and meeting Agenda (**Attachment 1**) and the general meeting presentation. Ryan asked attendees to hold general questions until the end of the meeting.

Meeting Logistics

Amy Brand, a community involvement specialist from Jacobs and facilitator for the meeting, reviewed the meeting logistics with the attendees and reminded the attendees of the mission of the RAB which is to keep an open dialogue of environmental investigations. Amy highlighted the partnership with the Navy, MDE, and public and reminded RAB members of their responsibility to serve as liaisons for their community, bringing questions to and from RAB meetings. Amy noted that at end of each discussion topic, RAB members can ask questions, followed by questions from public attendees at the end of the meeting. Lastly, Amy presented a brief summary of ground rules.

Review and Approve the May 2023 RAB Meeting Minutes

Amy indicated that she had sent out the draft May meeting minutes to the RAB in September. Amy noted that during preparation of the May meeting minutes, it was hard to hear the guests in the recording and suggested that everyone speak up so it's easier to hear the questions. Greg Morris commented that he was the "RAB meeting member" participant noted in the draft minutes and that he was ok with being identified in the final minutes. No objections on the May 2023 meeting minutes were received and the RAB members in attendance agreed to approve the minutes for finalization. Amy indicated that the minutes now will be finalized.

Base-Wide PFAS PA/SI

Ryan Mayer, the Navy RPM for NRL-CBD, discussed that Congress wanted Per- and Polyfluorinated Substances (PFAS) Preliminary Assessments (PA) and Site Inspections (SI) for all military installations to be completed by end of this year, and that the PFAS SIs for NRL-CBD are complete at this time. Ryan reviewed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process (**Attachment 2**, Slide 11). He noted that PFAS investigations at NRL-CBD began with the Site 10 SI and further noted that sampling of all environmental media (soil, groundwater, surface water, sediment) is not typical done for most new sites in the SI phase. However, for Site 10, in anticipation that there had been a PFAS release due to the historical use of PFAS, samples of all the environmental media were collected during the SI.

Following the Site 10 SI, the Navy had taken a step back to complete the PA process and to re-evaluate other areas on the base with the potential for a PFAS release. The PA process included a review of historical documents, existing sites, closed sites, and any other operations which could have a potential for a PFAS release. Two areas, Site 10 (the Fire Testing Area) and Building 50 (the Former Firehouse) were documented in the PA. Ryan noted that since the Site 10 SI was complete, an SI for Building 50 was recommended.

Ryan then provided site background information for Building 50. He indicated that most Navy Bases have or had their own fire departments, and many have been identified in PAs as potential Aqueous Film Forming Foam (AFFF) release areas. Some fire stations have been demolished, but the former firehouse building at NRL-CBD still exists, although it is no longer used and is considered abandoned. Existence of the building makes it easier to identify possible AFFF storage areas and where trucks were parked, which aids in designing the sampling plan. The area around Building 50 is where AFFF would have been stored, handled, and transferred from containers to fire trucks and where the fire trucks were washed. The former firehouse was constructed before the 1950s and operations began sometime before 1984 and ended sometime after 2008. Fire trucks were stored, washed, and serviced at Building 50 and AFFF was stored in 5-gallon containers in a back room and transferred to trucks.

Conceptually, the SI sampling plan design is based around the historical operations. The objective of the SI is to determine whether there has been a PFAS release at the site. Extensive sampling is not done during the SI phase of the CERCLA process. Groundwater sampling and soil sampling were conducted as part of SI to see if there was a PFAS release. If there was a release, the site will move on to the next phase of investigation and if not, no further action will be recommended. Additionally, Ryan indicated that as part of Building 50 SI, we want to understand groundwater flow direction in the surficial aquifer. There are many existing monitoring wells on site and new wells were installed to see where PFAS is traveling. Ryan stated that, in general at NRL-CBD, we have a good idea where groundwater flow is going, but for particular areas of the Base, such as Building 50, we want to evaluate groundwater flow in more detail, as part of the Conceptual Site Model (CSM).

Andy Bogdanski, a project manager with Jacobs, presented the SI approach for Building 50. Co-located surface and subsurface soil samples were collected from five locations around the footprint of the building. Soils borings varied in depth between 20 and 25 feet below ground surface (bgs). Surface samples were collected from 0 to 6 inches bgs, and subsurface samples were collected from 6 to 24 inches bgs and from one foot above the water table. Also, during the field investigation, three surficial aquifer groundwater monitoring wells were installed which were co-located at three of the five soil sample locations (**Attachment 2**, Slide 17). One round of synoptic groundwater level gauging was performed to help to understand the depth to groundwater and the groundwater flow direction. Groundwater samples were collected from two existing and three newly-installed monitoring wells. All samples, both soil and groundwater were analyzed via Environmental Protection Agency (EPA) Method

1633 for 29 PFAS compounds. Ryan added that EPA Method 1633 gets updated from time to time and may get changed again.

Kelly Kahn, a public attendee, asked how is it determined how far below ground to test, as it has been 15 years since Building 50 was used. Andy explained that the CSM is used and provided release scenario of a surface spill that entered surface soil and then leached to groundwater. Andy further explained the rationale of the soil sampling depths used to collect soil data – surface and shallow surface soil would be representative of a surface release while the deeper subsurface soil sample provides an understanding of how far its migrated downward in soil and whether PFAS are entering the groundwater.

Amy asked Andy to clarify that soil samples are dry samples above the water table and no soil samples are collected below the water table, correct? Andy confirmed that and further stated that saturated soil samples are not collected as groundwater samples are more representative at that point.

Andy then reviewed the soil and groundwater sampling locations at Building 50, including the existing and newly-installed monitoring wells. Perfluorooctane sulfonic acid (PFOS) was the primary PFAS reported in soil (**Attachment 2**, Slide 18). Overall, results were relatively low in comparison to other PFAS sites. No PFAS exceeded EPA Region 3 regional screening levels (RSLs) for residential soil in the upgradient (western) side of the site. PFAS concentrations in soil were greater on the downgradient (eastern) side of Building 50. Exceedances of RSLs were reported at the three downgradient locations.

Andy indicated that the one of the SI objectives was to understand groundwater flow around Building 50. Depth to water was measured at five monitoring wells, and overall, groundwater flow is to the east. However, there are groundwater flow components to the northeast and southeast, which are consistent with local topography (**Attachment 2**, Slide 20).

Andy next discussed groundwater PFAS results (**Attachment 2**, Slide 21). Perfluorohexane sulfonate (PFHxS) is the primary PFAS reported in samples west and upgradient of Building 50, and PFOS is the primary PFAS reported east and downgradient of Building 50. This data is indicative of a new local release as compared to a release that is migrating from elsewhere on Base. One of the questions was whether PFAS detected were from a new release at Building 50 or migrating from Site 10. Since PFHxS is more mobile than PFOS, the higher PFHxS concentrations to the west of Building 50 and higher PFOS detections to the east of Building 50 support that the detections are a new PFAS release occurring near Building 50. Ryan then added that they were selective and strategic in soil and groundwater sampling locations for their sampling design at Building 50 in order to be able to determine if any PFAS detections were from the Site 10 plume or from Building 50.

Larry Jaworski, RAB member, emphasized the concern about impacts of PFAS to the Bay. Andy responded and acknowledged Larry's concern and stated that additional sampling will be completed in the RI to address this concern. David Harris then asked for clarification regarding which direction was downgradient. Andy responded that downgradient at Building 50 refers to the east.

Andy discussed the SI results and conclusions (**Attachment 2**, Slides 22 and 23). There are exceedances in groundwater, surface soil, and subsurface soil above RSLs. PFAS are found in soil and groundwater, which is consistent with the Building 50 CSM, and indicates that the washing of fire trucks resulted in releases of AFFF to pavement. The recommendation of the SI is to proceed to a Remedial Investigation (RI). The RI will focus on defining the nature and extent of PFAS in soil, groundwater, and the environment.

Ryan indicated the next steps for the Building 50 site are to open a new site in the Navy's Environmental Restoration Program which will allow for additional funding to become available. Currently, a new site is approved in the Navy budget to open Building 50 as Site 12 which will move to the RI phase. Funding for the RI is planned for the 1st or 2nd quarter of Fiscal Year 2024. The Building 50 SI report is final and will become available on the NRL-CBD website shortly through the Administrative Record. Ryan also commented that the PA is also available through the Administrative Record as well.

Questions & Comments from RAB Members on the Basewide PA/SI

Amy then opened the meeting to questions and comments from RAB members regarding the Basewide PA/SI topic.

- Kevin Britt indicated that he was disappointed that the SI did not include PFAS sampling in areas not yet sampled, as well as at the landfill or burn sites.

  Ryan indicated that the Navy follows its policy for identifying sites that move to an RI by looking at the potential for storing or transferring AFFF, spill records, historical use, etc. For some sites where AFFF was stored, the sites were not included in the SI unless there was a record of spill or transfer. All sites initially evaluated in the PA, the justification for why they did or did not move on to SI, and any regulatory disagreement are on record. If the Navy policy does change, they would go back and reassess sites.

- David asked if regulations change regarding testing for PFAS, does the Navy go back and test?

  Ryan stated that, as EPA methods change, the Navy/Department of Defense (DoD) updates policy regarding which method to use. Andy Bogdanski further indicated that not all the wells previously sampled were sampled under the new method (EPA Method 1633), but will be sampled under the new method in the RI. In addition, the list of PFAS compounds that are being analyzed has increased from 3 to 29, and soon to be 40 compounds. The list of compounds with screening levels has also been continually updated and the RI data will be compared to the latest approved version of the screening levels available at that time.

- Larry asked if there will be any sampling and testing of PFAS in sediment in the Bay?

  Ryan indicated that regulations and screening criteria for sediment are still in development, and the Navy's focus is currently on Site 10. The Navy's biggest concern at this time is surface water at the base, and surface water leaving the base and going to the bay. Larry indicated his concern is the potential exposure to fish and shellfish, and exposure to humans, in the Bay. Ryan indicated the interim remedial action (IRA) that will be put in place includes addressing surface water leaving the base. Peggy Williams of the MDE added that the MDE Water Science Department has been sampling fish tissue, crab tissue, surface water, and possibly oysters, and the information is on the MDE's PFAS landing page, the link for which is provided at the end of the presentation (https://mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx) There are no validated ecological numbers for sediment and surface water and the numbers are still evolving.

  Larry further commented that he thinks that sediment needs to be sampled. Ira of the MDE indicated that fish advisories are anticipated to be released next month. MDE has focused sampling on fish and crab tissue. He advised that RAB members keep checking the MDE website.

- Greg asked whether MDE finds the pace that Navy is conducting sampling acceptable?

  Peggy indicated that this base is fairly far ahead compared to other sites. Typical investigation focuses on the site source and moves outward. She indicated that the Navy has gone at a reasonable pace regarding the amount of data that needs to be reviewed.

  Ryan indicated that the Navy sampled surficial and deep groundwater, and drinking water in community early on. The Navy has also collected surface water and sediment samples in the northern and southern streams.

Ira indicated that the MDE's current focus is on drinking water. Peggy added that this is where we have draft maximum contaminant levels (MCLs) for PFAS. Ryan stated that the Navy is waiting for EPA to finalize drinking water MCLs for a few PFAS.

Site 10 Supplemental SI Results

Ryan started the presentation by stating that the Site 10 SI sampling included samples from soil, shallow and deep groundwater, surface water, and sediment. Based on the SI results, there were data gaps in the CSM regarding the northern and southern streams; specifically, there was an order of magnitude increase in PFAS concentrations between the upgradient and downgradient portions of the southern stream. These data gaps were addressed through the Supplemental SI (SSI), in which additional samples were collected from surface water in the northern and southern streams, in the sanitary sewer system, and from the wastewater treatment plant (WWTP). The Partnering Team wanted to verify the PFAS concentrations in the northern stream and determine the concentrations entering and leaving the WWTP and in other downgradient areas of the southern stream before it left the base and entered the Chesapeake Bay.

Andy indicated that the sampling was completed in late 2021 and outlined the SSI sampling approach and a summary of the sampling locations (**Attachment 2**, Slide 28). The five previous surface water locations in the northern stream were resampled, and an additional nine samples were collected from the southern stream, including three from the near shoreline of the Bay, and three locations from the WWTP influent and effluent. Two additional staff gauges were also installed to measure surface water elevations.

David, RAB member, asked a question regarding if have you three stream sources of PFAS which converge into one wouldn't the concentrations be higher. Andy indicated that it depends on the concentrations and flow of the individual streams relative to their contribution of the combined flow, the resulting concentration could be higher or lower. Andy added that the sampling approach for the SSI tried to take into consideration factors including where surface water is coming from (groundwater, stormwater influences, etc.) as well as understanding the variation in PFAS concentrations in surface water over time.

David pointed out that there is an additional small stream, west of Bayside Road, on a small portion of land that use to be owned by the Navy, and this stream has not been sampled. Andy indicated that the team was not aware of this small stream. Ryan Mayer stated that it is part of a larger stream and that, while that specific section of the stream may not have been sampled, the resulting downgradient portion of the stream had been sampled so that area is likely not a data gap. David stated that he'd like it to be known that this stream was not sampled, and it was not sampled as per Navy policy for sampling off-Base.

Kevin then asked Ryan what is the Navy's policy for off-site sampling. Ryan indicated the Navy will sample surface water off-Base during the RI but was not conducting off-Base sampling during the SI. Ryan added that there are many potential sources in the southern portion of the Base with regard to the streams, WWTP, and sanitary sewer lines that needed to be understood in the SI and that delineation sampling would be conducted in the RI.

Ira requested clarification that the Navy used to own a small piece of property that is now owned by the Harris's. David responded yes; it was sold in late 1970s or early 1980s. It is undeveloped and no buildings are present.

Andy then proceeded with explaining the SSI results for the northern stream (**Attachment 2**, Slide 29). The PFAS compounds found in the surface water and their concentrations were consistent with concentrations observed during the Site 10 SI. Andy stated that this was good to see as it indicates that the PFAS concentrations are stable and likely coming from groundwater discharge to surface water.

Andy then provided the results for the WWTP and provided a general outline of the sewer lines and pump station associated with the WWTP (**Attachment 2**, Slide 30). Andy explained that there are two influent lines that enter a manhole - SW12 (from the eastern side of the facility) and SW13 (from the western side of facility). Elevated PFAS in SW13 indicates PFAS are originating from the western side of the facility (where Site 10 is located). Based on the concentrations at SW13, the only other area that has similar concentrations is groundwater near Site 10. These results indicate that groundwater from near Site 10 is likely entering into the sanitary sewer lines and being conveyed to the WWTP. Location SW15 is the effluent coming out of plant where there was a slight reduction of PFAS concentrations and indicates that PFAS are mostly moving through the treatment plant as the treatment plant is not designed to treat PFAS. The resulting elevated concentrations of PFAS in the downgradient portion of the stream are due to effluent discharge from the WWTP.

Kevin questioned if stormwater was entering into the WWTP. Andy indicated that the lines are sanitary sewers only. Groundwater should not be flowing into the sanitary lines, but infiltration and inflow is not an uncommon issue due to seepage and cracks within the sanitary lines. Ira asked about the volume of water coming into the WWTP. Andy indicated he didn't have the exact number readily available but that it was on the order of treating around 1 gallon per minute. By comparison, the volume of water being discharged from WWTP is relatively low since the Base does not have many fulltime staff.

Andy then presented results of surface water sampling in the southern stream. The five PFAS being evaluated were detected throughout the southern stream (**Attachment 2**, Slide 31). A 75 percent reduction in concentrations was observed, from 40,000 parts per trillion (ppt) to approximately 10,000 ppt, along the run of southern stream. Surface water samples SW20-SW22, located near the shoreline where the PFAS concentrations enter the Bay, had PFAS concentrations that dramatically reduced as the water entered the Bay (10,000 ppt just before the beachfront and 5 ppt at the location farthest in the Bay).

Ryan discussed how the Site 10 SI and SSI sampling results; showing PFAS in the northern stream, southern stream, and WWP influent/effluent; drove the off-Base migration concerns and the need for the Interim Removal Action (IRA). The completion of the SI and SSI allowed the IRA to be implemented sooner and would have been much slower to happen had the Navy moved to a RI.

David asked the Navy or MDE if they thought about fixing the sanitary sewer lines. Ryan responded that the Navy recently conducted a camera inspection of the sanitary sewer lines. The inspection was aimed at identifying areas of infiltration, clay lines, and broken lines. The Navy was surprised that the polyvinyl chloride (PVC) piping was in good condition but did identify leaks at the manholes. The Navy believes that some of the infiltration is occurring at the manholes. Andy added that it appears the areas where the piping intersects the manhole basins is the main issue. David asked for clarification that the manholes are the issue and sealing them might fix things. Ryan and Andy indicated that the Navy is looking at the re-sealing the manholes. Andy further indicated that sections of the sanitary sewer lines are very deep within the groundwater table and even if they reseal the manholes the sanitary system is not likely to ever be 100 percent sealed; there will always be some leakage. Ira May indicated that the backfill material along the pipes will also act as a preferential pathway for groundwater to a certain extent.

Ryan indicated that the Draft 60 Percent Basis of Design (BOD) for IRA was submitted for regulatory review in August 2023. Once approved, the Remedial Action Contractor will then complete the 100 percent Basis of Design. Amy Brand asked a reminder of what is being designed. Ryan indicated there will be two separate treatment systems. One in the north pond which will pull water from the pond, treat it, and then discharge it back into the northern stream. The other treatment system will be at the WWTP. The treatment system will remove water from the WWTP equalization tank, treat it, and then discharge it back into the discharge point for the WWTP. Peggy Williams highlighted that these are the only PFAS treatments systems in the state of Maryland. Ryan indicated the public will start to see more

of these treatment systems in the future as regulations become available. Ryan reminded everyone that this is an Interim Removal Action and an Action Memorandum will be prepared which will explain the basis of action and will be available for review, with a 30-day public comment period. The public comment period is not just for the Action Memo itself but any of the associated information provided in the Administrative Record. Comments received will be addressed. Construction of the treatment systems is anticipated to begin this winter and be up and running in spring 2024.

Open Questions and Comments from RAB Members

Amy noted there is one agenda item, community co-chair election, that remains, then then opened the meeting to questions and comments from RAB members regarding the SSI presentation.

- Kevin asked that the Navy notify the RAB when the 30-day public comment period for the Administrative Record starts.

  Ryan responded yes.

- David asked whether the Navy is going to retest the two deep monitoring wells in the Piney Point aquifer during the RI?

  Andy responded yes, the RI includes resampling of the Piney Point monitoring wells. The on-Base RI will include resampling of all shallow monitoring wells, the four deep monitoring wells, soil sampling, and another round of surface water and sediment sampling.

- Greg asked whether the Navy or MDE maintains an advisory to not eat the local animals?

- Ryan stated that with regard to fish advisories, this is not something that the Navy provides. Peggy indicated that there is a group at the MDE regarding a fish advisory. Greg indicated he was asking about land animals. Peggy did not think deer tissue samples have been collected. Kevin indicated that the Navy stopped allowing people eating deer from the site.

- Greg asked if there is a library where minutes and documents are kept?

  Amy indicated that the minutes are maintained on the public website under the community involvement tab; and the Administrative Record which includes all documents that are part of decision making at the site can be accessed from the website as well.

Community Co-Chair Election

Amy indicated that a new community co-chairperson needs to be elected. The current co-chairperson, Kevin, indicated that the position does require much of a time commitment, maybe an hour or two of planning before each RAB meeting. David Harris stated he and Vivian had volunteered as candidates for community co-chairperson. However, Vivian deferred to David to fulfill the community co-chairperson role and the RAB members showed majority support for David. A show of hands supported election of David Harris as the next community co-chair.

Future Meeting Planning and Adjournment

Amy indicated that the next RAB meeting is proposed for Wednesday April 17, 2024 at 5:00-7:00 pm. She asked the RAB members if there were any concerns with this date. No concerns nor objections were noted. Amy indicated that if there are any topics anyone would like to discuss, please let the community co-chair or Ryan know. Ryan indicated that he would reach out to David about one month prior to the meeting to discuss topics.

Amy then reviewed websites available for additional information on PFAS, including the MDE PFAS Landing page that Peggy had mentioned, as well as the RAB website which includes the meeting

minutes. Ryan indicated that the NAVFAC website links to all the Navy sites/bases, and that Administrative Records are available there too for all Navy installations in different states.

The Meeting was adjourned at approximately 7:00 pm on October 18, 2023.

Table 1. List of Attendees
Restoration Advisory Board Meeting October 18, 2023

Name	Affiliation
Ryan Mayer	NAVFAC Washington; Co-Chair
Jennifer Cheswick	NRL
Kevin Britt	RAB member; Community Co-Chair
Vivian Cawood	RAB member
Will Hager	RAB member
David Harris, II	RAB member
Robin Harris	RAB member
Lawrence Jaworski	RAB member
Greg Morris	RAB member
Lori Blackwelder	Public
Kelly Hauhn	Public
Ira May	MDE
Peggy Williams	MDE
Amy Brand	Jacobs
Andy Bogdanski	Jacobs
Laura Lampshire	Jacobs
Windy Campbell	Jacobs
Sarah-Jane O'Brien	Jacobs

Attachment 1
Naval Research Laboratory – Chesapeake Bay Detachment Restoration Advisory Board Meeting Agenda, October 18, 2023

Restoration Advisory Board (RAB) Meeting
Naval Research Laboratory – Chesapeake Bay Detachment

October 18, 2023, 5:00-7:00 pm
Northeast Community Center
4075 Gordon Stinnett Ave, Chesapeake Beach, MD 20732

Meeting Facilitator: Amy Brand - Jacobs

Meeting Agenda		
Time	**Topic**	**Presenter**
5:00-5:10 pm	Welcome and Introductions	Ryan Mayer and Kevin Britt
5:10-5:15 pm	Meeting Logistics: review ground rules and meeting logistics	Amy Brand
5:15-5:20 pm	Review and Approve May 2023 RAB Meeting Minutes	Amy Brand
5:20-5:35 pm	Base-wide PFAS SI Results	Ryan Mayer and Andy Bogdanski
5:35-5:45 pm	Questions & Comments from RAB Members	RAB Members
5:45-6:00 pm	Site 10 Supplemental SI Results	Ryan Mayer and Andy Bogdanski
6:00-6:10 pm	Questions & Comments from RAB Members	RAB Members
6:10-6:30 pm	Open Questions & Comments	RAB Members and Public Meeting Attendees
6:30-6:50 pm	Community Co-chair Election	Ryan Mayer and Andy Bogdanski
6:50-7:00 pm	Future Meeting Planning and Adjournment	Ryan Mayer

Attachment 2
Naval Research Laboratory – Chesapeake Bay Detachment Restoration Advisory Board Meeting Presentation, October 18, 2023

Naval Facilities Engineering Systems Command
NAVFAC Washington

Naval Research Laboratory – Chesapeake Bay Detachment Restoration Advisory Board Meeting

October 18, 2023

5:00 - 7:00 p.m.

Introductions

Community RAB Members		
Open, Community Co-Chair	Vivian Cawood	Pat Durbin
Blenda Eckert	Tom Eckert	Mark Fisher
Michael Gilliam	Will Hager	David Harris
Robin Harris	Larry Jaworski	Brendan Lumsden
Greg Morris	Michael Rooney	Allison York
Navy Team		
Ryan Mayer **NAVFAC Remedial Project Manager** **Navy Co-Chair**	Anna Lesichar NRL-CBD	
Peggy Williams Maryland Department of the Environment (MDE)	Ira May MDE	Jessica Shulman MDE
Andy Bogdanski Jacobs	Amy Brand Jacobs	Laura Lampshire Jacobs

Agenda

- Welcome and Introductions
- Meeting Structure and Guidelines
- Review and Approve draft May 2023 Meeting Minutes
- Basewide PFAS Site Inspection Results
  - Questions & Comments from RAB Members
- Site 10 Supplemental Site Inspection Results
  - Questions & Comments from RAB Members and Public
- Community Co-Chair Election
- Future Meeting Planning and Adjournment

Naval Facilities Engineering Systems Command
NAVFAC Washington

Meeting Structure and Guidelines

Amy Brand - Jacobs

Mission and Charter Overview

Mission: To establish and maintain open and interactive dialogue between representatives of the Navy, the Maryland Department of the Environment (MDE), and the local community concerning the Environmental Restoration Program (ERP) activities at NRL-CBD. The RAB:

- Exists to give community access to information about the Navy's Environmental Restoration Program at NRL-CBD.
- Acts as a liaison group to disseminate information to the community and solicit the community for comments.
- Is an advisory group, not a decision-making board.
- Gives community members an opportunity to learn about the ERP; share input, ideas, and concerns; and advise decision-makers.
- Enables the project team to identify and address questions, comments and concerns from the community early and throughout the process.

Structure of an In-Person RAB Meeting

- RAB members sit at the table
- The Navy's contractor, Jacobs, will facilitate the meeting, but the Navy and Community Co-Chairs are in charge of the meeting
- RAB members may ask questions and discuss at the end of each presentation
- Public participants will hold questions until the designated time at the end of the meeting*

Review of Ground Rules

- All remarks or questions will be made in a **courteous and respectful manner**. Profanity, angry or violent outbursts, and other types of disrespectful or rude behavior will not be tolerated.
- RAB members will **talk one at a time** and wait to be recognized by a Co-Chair.
- RAB members will be patient when **listening to others speak** and will not interrupt.
- RAB members will **avoid dominating discussion** and will be cognizant of letting others speak.
- Members will **limit side comments** and will not engage in side conversations.
- Comments and questions will be limited to **agenda topics** except during periods on the agenda for open discussion.
- RAB members will turn **cell phones off** or to vibrate and will not check messages or otherwise use cell phones during a meeting except to look something up as related to the meeting. (If needed, RAB members will excuse themselves from the room to take urgent calls.)
- RAB members will discuss any concerns about the discussions or the meeting by one-on-one with a **Co-Chair**.

Naval Facilities Engineering Systems Command
NAVFAC Washington

Review and Approval of May 2023 RAB Meeting Minutes

Amy Brand - Jacobs

Previous Meeting Minutes

- The Draft May 2023 RAB meeting minutes were distributed to the RAB via email in September for review and comment
  - Comments from 1 RAB member received
- The Final September 2022 RAB meeting minutes have been posted to the NRL-CBD website
- Approval to finalize?

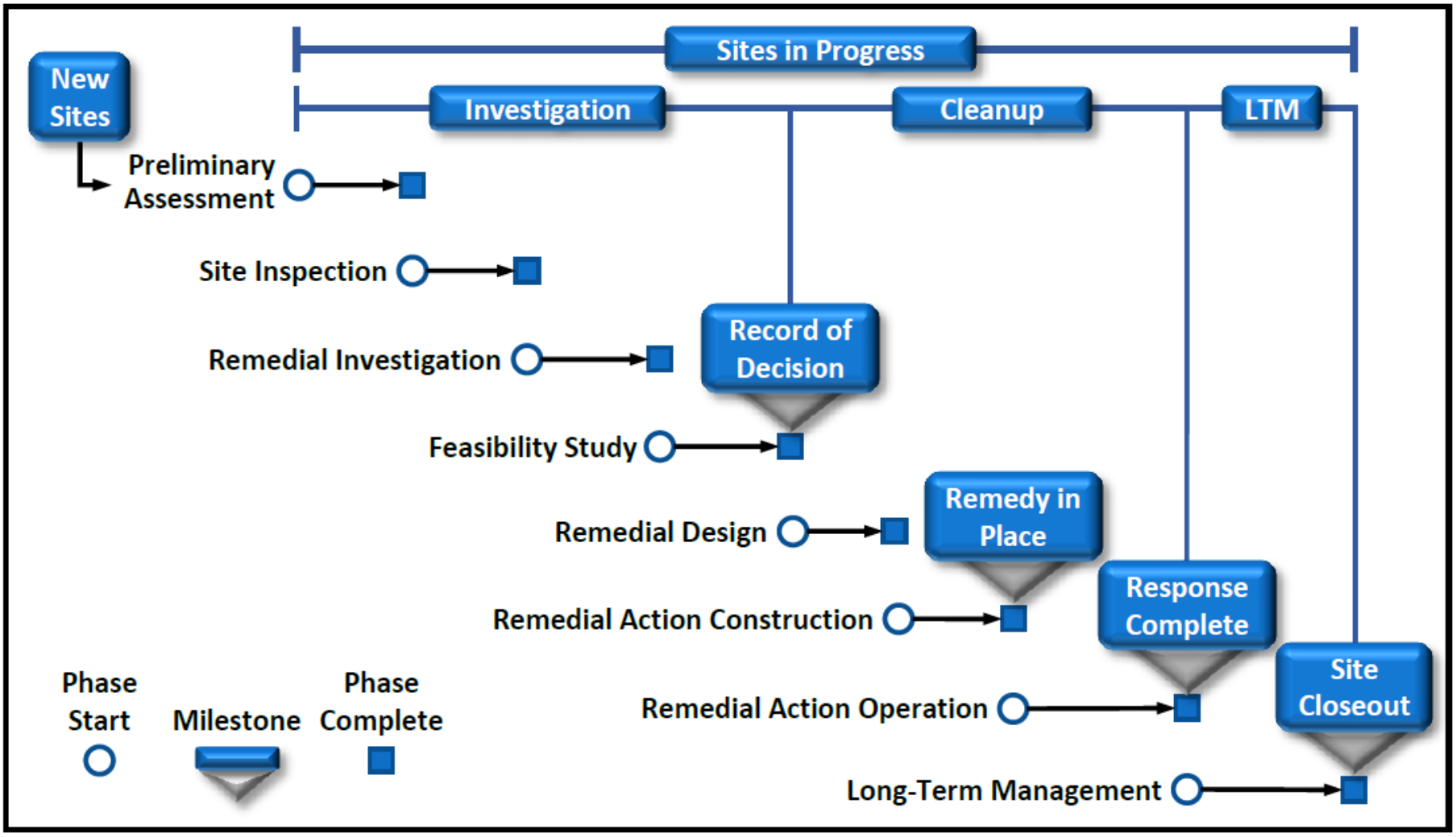
Naval Facilities Engineering Systems Command
NAVFAC Washington

Base-wide PFAS Site Inspection Results

Andy Bogdanski - Jacobs

Ryan Mayer - NAVFAC Washington

Overview of the CERCLA Process



PA Findings and Conclusions

- Two areas were identified as historical PFAS release areas
  - **Site 10 – Fire Testing Area**
    - Handling, use, and release of AFFF during fire suppressant testing
    - Site Inspection is complete and planning for the Remedial Investigation is underway.
  - **Building 50 – Former Firehouse**
    - Handling, use, and potential release of AFFF during fire-fighting operations, and the washing of fire trucks and fire-fighting apparatus
    - A Site Inspection was recommended.

Building 50 Location

Legend

- Potential PFAS Release Area to be Further Evaluated
- Stormwater Inlet
- Stormwater Utility Line
- Anticipated Groundwater Flow Direction
- Anticipated Overland Flow Direction
- Installation Boundary

Building 50 – Former Firehouse

- The building was constructed before the 1950s based on review of historical aerial photography
- The building served as the firehouse for the NRL-CBD fire department
- The duration of the use of Building 50 as a firehouse is unknown; operations began before 1984 and ended sometime after 2008
- Fire trucks were stored and serviced at the firehouse during their use at NRL-CBD, which included being washed both inside Building 50 and out on the asphalt parking lot near the building
- AFFF packaged in five-gallon containers was stored by the fire department in the firehouse, and transferred into fire truck AFFF holding tanks
- When the fire department ceased operations at NRL-CBD they removed the stored AFFF

Site Inspection Objectives

- Based on the Conceptual Site Model, historic AFFF transfer activities and cleaning/maintenance of fire trucks may have resulted in releases of AFFF and/or AFFF-impacted rinsate to the surrounding pavement/soil
- Objectives:
  - Determine if previous activities at Building 50 have resulted in a release of PFAS to surface soil, subsurface soil, or the surficial groundwater aquifer in the area of Building 50
    - Are PFAS present in site media indicating that a previous release occurred
  - Refine the understanding of groundwater flow direction in the vicinity of Building 50
    - What is the local groundwater flow direction in the surficial aquifer

Site Inspection Approach

- Collect co-located surface/subsurface soil samples from 5 boring locations around the former Firehouse
  - Maximum depth of each soil boring varied between 20 and 25 feet below ground surface
  - Surface soil collected from 0-6 inches below ground surface
  - Subsurface soil collected from two depth intervals:
    - 6-24 inches below ground surface
    - 1 foot directly above the water table
- Install three surficial groundwater monitoring wells
  - Wells were co-located with three of the five soil borings
- Conduct one round of synoptic groundwater level gauging
- Sample groundwater from two existing and three new monitoring wells
- All samples (soil and groundwater) analyzed by EPA Method 1633 for 29 PFAS compounds

Soil Boring and Monitoring Well Locations

- Orange squares = soil borings
  - Surface soil - 0-6 inches
  - Subsurface soil - 6-24 inches and 1 foot above the water table
- Blue circles – existing wells
- Black circles – new wells

Site Inspection Results

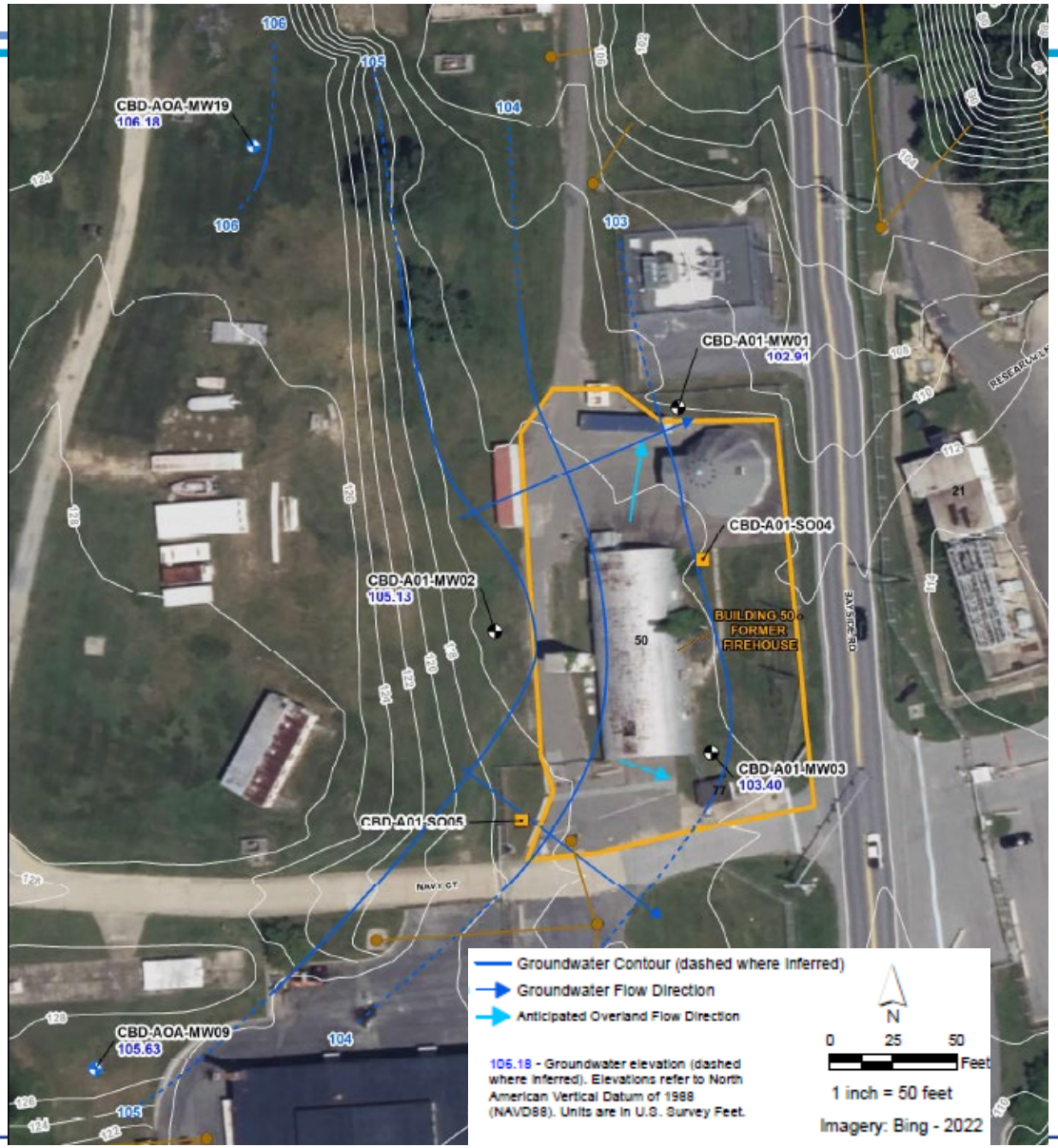
- **Soil**
  - PFOS is the primary PFAS reported
  - PFOS concentrations at soil borings advanced along western upgradient edge of pavement (CBD-A01-MW02 and CBD-A01-SO05) range from:
    - 1.4 to 2.6 part per billion (ppb) in surface soil (0-0.5 feet below ground surface)
    - 1.1 to 2.8 ppb in subsurface soil (0.5-2.0 feet below ground surface)
    - Up to 6.7 ppb in capillary fringe soils just above the water table.
    - No PFAS results exceed the November 2022 EPA regional screening levels (RSLs) for residential soil

Site Inspection Results

- **Soil (continued)**
  - PFOS concentrations at soil borings advanced along eastern, downgradient edge of pavement (CBD-A01-MW01, CBD-A01-SO04, and CBD-A01-MW03) range from:
    - 9.7 to 440 ppb in surface soil (0-0.5 feet below ground surface)
    - 5.8 to 800 ppb in subsurface soil (0.5-2.0 feet below ground surface)
    - Up to 190 ppb in capillary fringe soils just above the water table.
    - PFOS exceeds the November 2022 EPA RSLs for residential soil in surface soil at CBD-A01-MW01 and CBD-A01-SO04 and subsurface soil at CBD-A01-MW03.

Site Inspection Results

- Groundwater flow direction
  - Depth to water was measured at five wells in March 2023
  - Groundwater flow across the Building 50 area is primarily to the east with a component of flow to the northeast and southeast, consistent with local topography



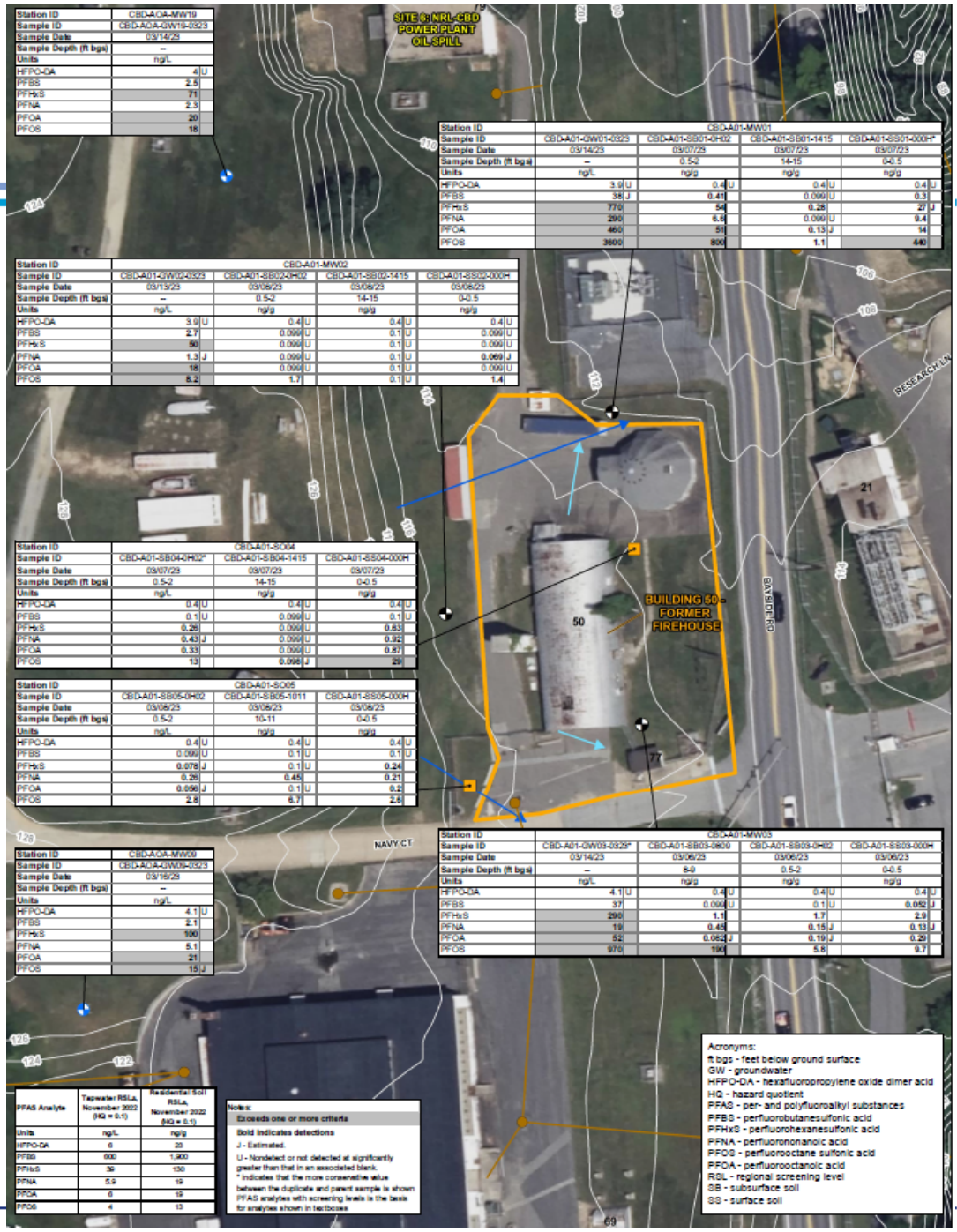
Site Inspection Results

- **Groundwater**
  - PFHxS is the primary PFAS reported west and upgradient ofBuilding 50.
  - PFOS is the primary PFAS reported east and downgradient of Building 50.
  - PFOS and PFHxS concentrations at monitoring wells located to the west and upgradient of the Building 50 SI area (CBD-A01-MW02, CBD-AOA-MW-09 and CBD-AOA-MW19)
    - Concentrations range from 8.2 to 18 ppt for PFOS and 0.26 to 100 ppt for PFHxS
  - PFOS and PFHxS concentrations at monitoring wells located east and along downgradient edge of pavement to Building 50 (CBD-A01-MW01, CBD-A01-MW03)
    - Concentrations range from 970 to 3,600 ppt for PFOS and 290 to 770 ppt for PFHxS.

Site Inspection Results

RSL Exceedance Summary

- **Groundwater**
  - PFOS, PFOA, PFHxS exceed RSLs at all locations
  - PFNA exceeds RSL at 2 locations
- **Surface Soil**
  - PFOS exceeds RSL at 2 locations
- **Subsurface soil**
  - PFOS exceeds RSL at 2 locations
  - PFOA exceeds RSL at 1 location



Site Inspection Conclusions

- PFAS concentrations in soil and groundwater samples collected during the March 2023 Basewide SI sampling event are consistent with the Building 50 CSM
  - Indicates that historic washing of fire equipment and/or AFFF transfer activities resulted in releases of AFFF and rinsate water to pavement, which likely flowed to eastern, downgradient edge of pavement at Building 50
- PFAS concentrations in soil and groundwater on the eastern downgradient side of Building 50 site are impacted with PFAS
- Building 50 is recommended to proceed to an RI

Next Steps

- Final Basewide PFAS Site Inspection Report
  - Report finalized in September 2023
  - Currently being loaded to the Administrative Record
- The Navy is opening Building 50 as a new site in the Environmental Restoration Program
  - This will allow funding to be allocated for the CERCLA process
  - The Remedial Investigation is planned to be funded in FY24

Questions and Comments

- Open to RAB Members for discussion of "Basewide PFAS SI Results" presentation.
- Questions from the public should be held to the end of the meeting.

Naval Facilities Engineering Systems Command
NAVFAC Washington

Site 10 Supplemental Site Inspection Results

Andy Bogdanski - Jacobs

Ryan Mayer – NAVFAC Washington

Supplemental Site Inspection Background

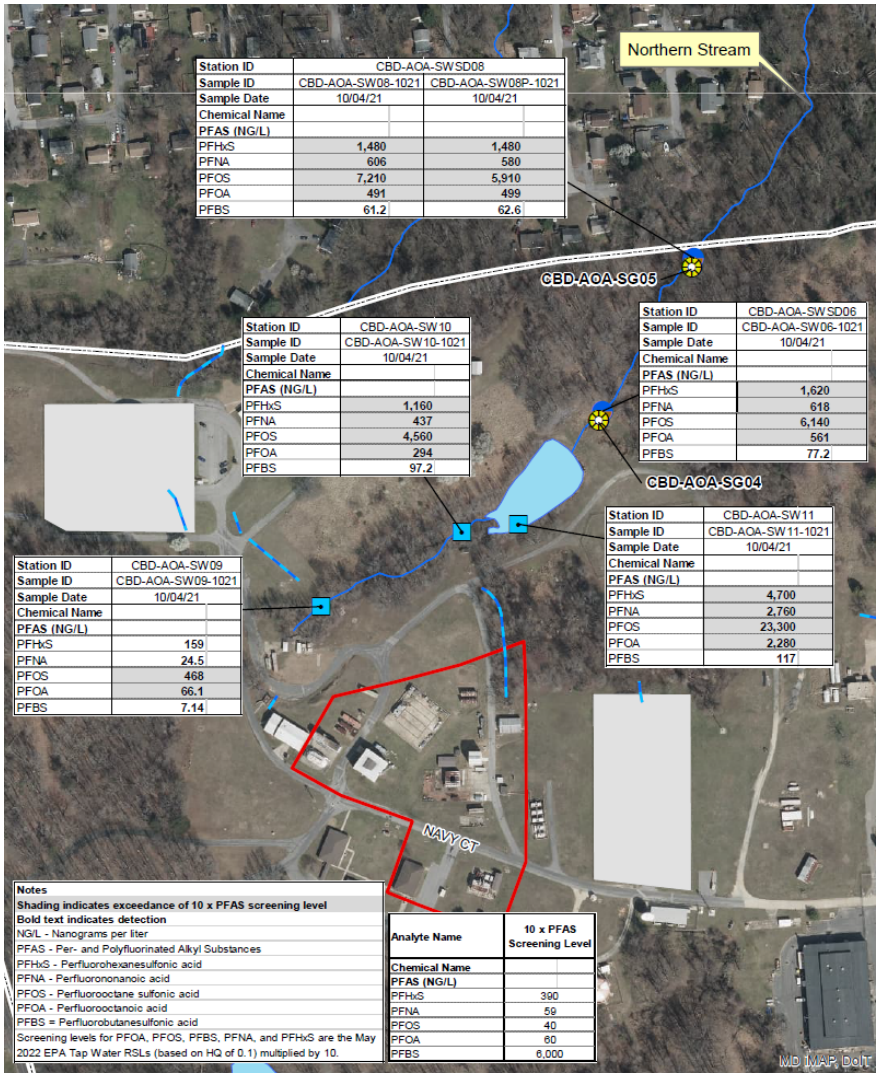
- Site 10 Site Inspection sampling showed PFAS concentrations in the northern stream and the southern stream.
  - There was an order of magnitude increase in PFAS concentrations between the upgradient and downgradient portions of the southern stream.
- SSI Objectives:
  - Verify the concentrations of PFAS reported in the northern stream;
  - Address data gaps in the Conceptual Site Model regarding where PFAS is entering the southern stream; and
  - Measure concentrations of PFAS in the southern stream at the installation boundary before entering the Chesapeake Bay

SSI Sampling Approach

- Collected surface water and wastewater treatment plant (WWTP) influent and effluent samples from 17 locations
  - Re-sampled five locations from the north stream
  - Sampled nine locations from the southern stream (including three from the near shoreline of the Chesapeake Bay)
  - Sampled three locations from the WWTP influent and effluent
- Installed two additional staff gauges
- Collected stream flow measurements from five locations

SSI Results – North Stream

- PFHxS, PFNA, PFOA, PFOS, and PFBS all detected at each of the five locations
  - PFHxS: concentrations 159 - 4,700 ppt. Four locations exceeded the surface water human health screening level of 390 ppt.
  - PFNA: concentrations 24.5 - 2,760 ppt. Four locations exceeded the surface water human health screening level of 59 ppt.
  - PFOA: concentrations 66.1 - 2,280 ppt. All five locations exceeded the surface water human health screening level of 60 ppt.
  - PFOS: concentrations 468 - 23,300 ppt. All five locations exceeded the surface water human health screening level of 40 ppt.
  - PFBS: concentrations 7.14 - 117 ppt. No locations exceeded the surface water human health screening level of 6,000 ppt.



Station ID	CBD-AOA-SWSD08	
Sample ID	CBD-AOA-SW08-1021	CBD-AOA-SW08P-1021
Sample Date	10/04/21	10/04/21
Chemical Name		
PFAS (NG/L)		
PFHxS	1,480	1,480
PFNA	606	580
PFOS	7,210	5,910
PFOA	491	499
PFBS	61.2	62.6

Station ID	CBD-AOA-SW10
Sample ID	CBD-AOA-SW10-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	1,160
PFNA	437
PFOS	4,560
PFOA	294
PFBS	97.2

Station ID	CBD-AOA-SWSD06
Sample ID	CBD-AOA-SW06-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	1,620
PFNA	618
PFOS	6,140
PFOA	561
PFBS	77.2

Station ID	CBD-AOA-SW09
Sample ID	CBD-AOA-SW09-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	159
PFNA	24.5
PFOS	468
PFOA	66.1
PFBS	7.14

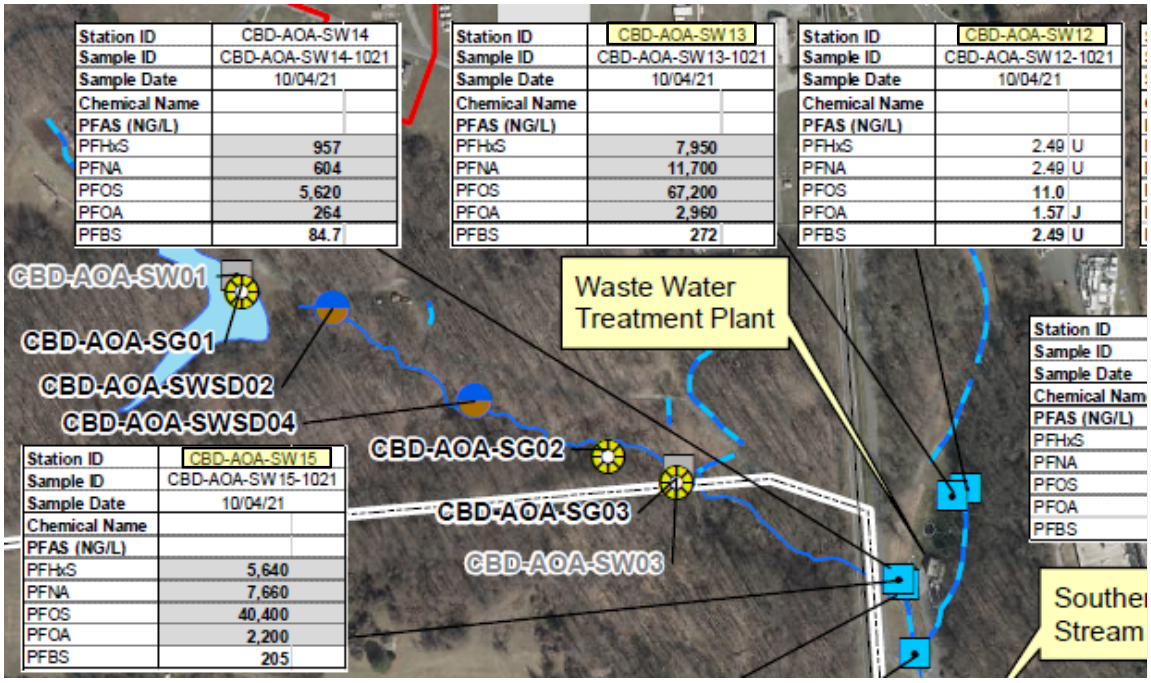
Station ID	CBD-AOA-SW11
Sample ID	CBD-AOA-SW11-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	4,700
PFNA	2,760
PFOS	23,300
PFOA	2,280
PFBS	117

Notes
Shading indicates exceedance of 10 x PFAS screening level
Bold text indicates detection
NG/L - Nanograms per liter
PFAS - Per- and Polyfluorinated Alkyl Substances
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOS - Perfluorooctane sulfonic acid
PFOA - Perfluorooctanoic acid
PFBS = Perfluorobutanesulfonic acid
Screening levels for PFOA, PFOS, PFBS, PFNA, and PFHxS are the May 2022 EPA Tap Water RSLs (based on HQ of 0.1) multiplied by 10.

Analyte Name	10 x PFAS Screening Level
Chemical Name	
PFAS (NG/L)	
PFHxS	390
PFNA	59
PFOS	40
PFOA	60
PFBS	6,000

SSI Results - WWTP

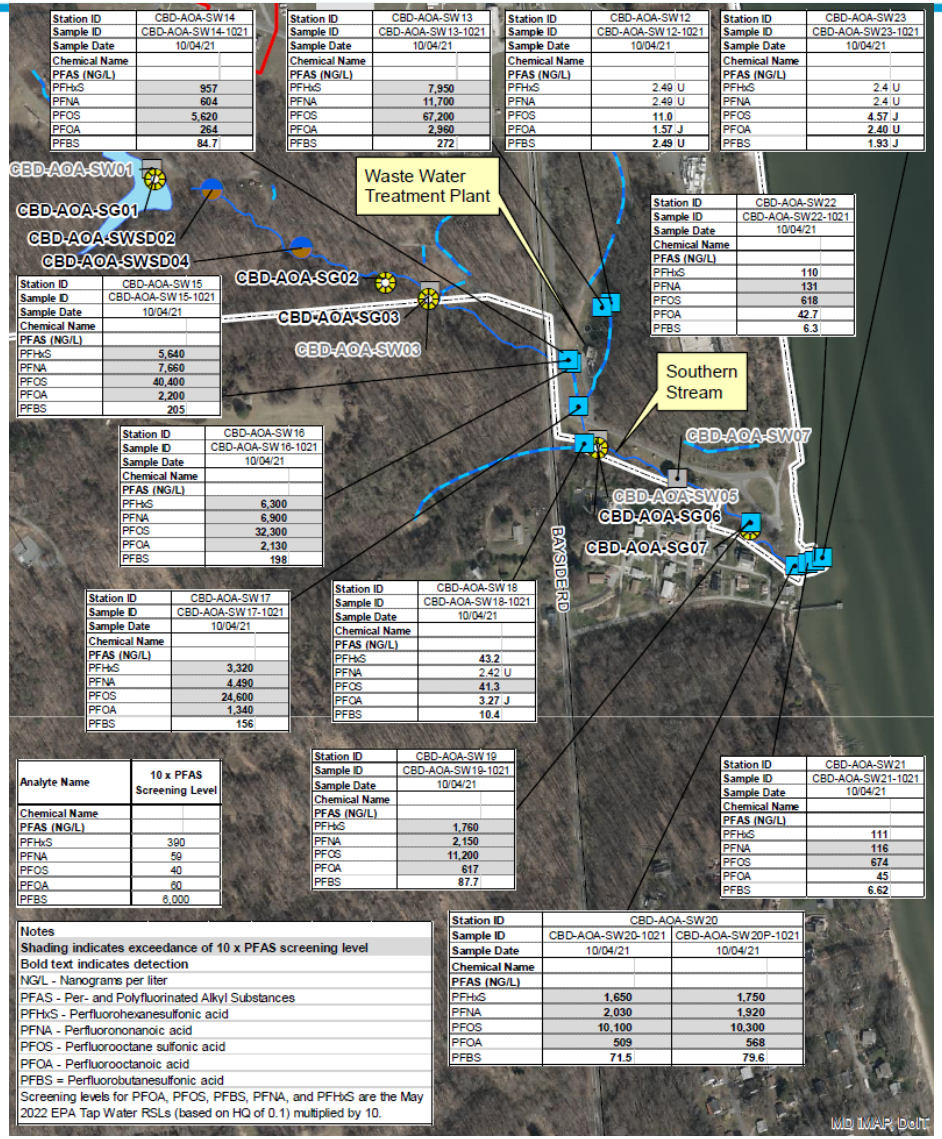
- Influent sample SW12 (eastern branch receiving line) only PFOA and PFOS were detected at concentrations of 1.57J ppt and 11 ppt respectively
- Influent sample SW13 (western branch receiving line) all five PFAS were detected.
- Effluent sample SW15, all five PFAS were detected. PFHxS, PFNA, PFOS, and PFOA exceeded the human health screening levels.



SSI Results – South Stream

Chemical	Frequency of Detection	Range of Detections (ng/L)	Frequency of Exceedance	Maximum Concentration (ng/L)	Location of Maximum Concentration
Perfluorohexanesulfonic acid (PFHxS)	8/9	43.2 J - 6,300	5/9	6,300	CBD-AOA-SW16
Perfluorononanoic acid (PFNA)	7/9	116 - 6,900	7/9	6,900	CBD-AOA-SW16
Perfluorooctane Sulfonate (PFOS)	9/9	4.57 J - 32,300	8/9	32,300	CBD-AOA-SW16
Perfluorooctanoic acid (PFOA)	8/9	3.27 J - 2,130	5/9	2,130	CBD-AOA-SW16
Perfluorobutanesulfonic acid (PFBS)	9/9	1.93 J - 198	0/9	198	CBD-AOA-SW16

SSI Results – South Stream



Station ID	CBD-AOA-SW14
Sample ID	CBD-AOA-SW14-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	957
PFNA	604
PFOS	5,620
PFOA	264
PFBS	84.7

Station ID	CBD-AOA-SW13
Sample ID	CBD-AOA-SW13-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	7,950
PFNA	11,700
PFOS	67,200
PFOA	2,960
PFBS	272

Station ID	CBD-AOA-SW12
Sample ID	CBD-AOA-SW12-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	2.49 U
PFNA	2.49 U
PFOS	11.0
PFOA	1.57 J
PFBS	2.49 U

Station ID	CBD-AOA-SW23
Sample ID	CBD-AOA-SW23-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	2.4 U
PFNA	2.4 U
PFOS	4.57 J
PFOA	2.40 U
PFBS	1.93 J

Station ID	CBD-AOA-SW22
Sample ID	CBD-AOA-SW22-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	110
PFNA	131
PFOS	618
PFOA	42.7
PFBS	6.3

Station ID	CBD-AOA-SW15
Sample ID	CBD-AOA-SW15-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	5,640
PFNA	7,660
PFOS	40,400
PFOA	2,200
PFBS	205

Station ID	CBD-AOA-SW16
Sample ID	CBD-AOA-SW16-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	6,300
PFNA	6,900
PFOS	32,300
PFOA	2,130
PFBS	198

Station ID	CBD-AOA-SW17
Sample ID	CBD-AOA-SW17-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	3,320
PFNA	4,490
PFOS	24,600
PFOA	1,340
PFBS	156

Station ID	CBD-AOA-SW18
Sample ID	CBD-AOA-SW18-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	43.2
PFNA	2.42 U
PFOS	41.3
PFOA	3.27 J
PFBS	10.4

Analyte Name	10 x PFAS Screening Level
Chemical Name	
PFAS (NG/L)	
PFHxS	390
PFNA	59
PFOS	40
PFOA	60
PFBS	6,000

Station ID	CBD-AOA-SW19
Sample ID	CBD-AOA-SW19-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	1,760
PFNA	2,150
PFOS	11,200
PFOA	617
PFBS	87.7

Station ID	CBD-AOA-SW21
Sample ID	CBD-AOA-SW21-1021
Sample Date	10/04/21
Chemical Name	
PFAS (NG/L)	
PFHxS	111
PFNA	116
PFOS	674
PFOA	45
PFBS	6.62

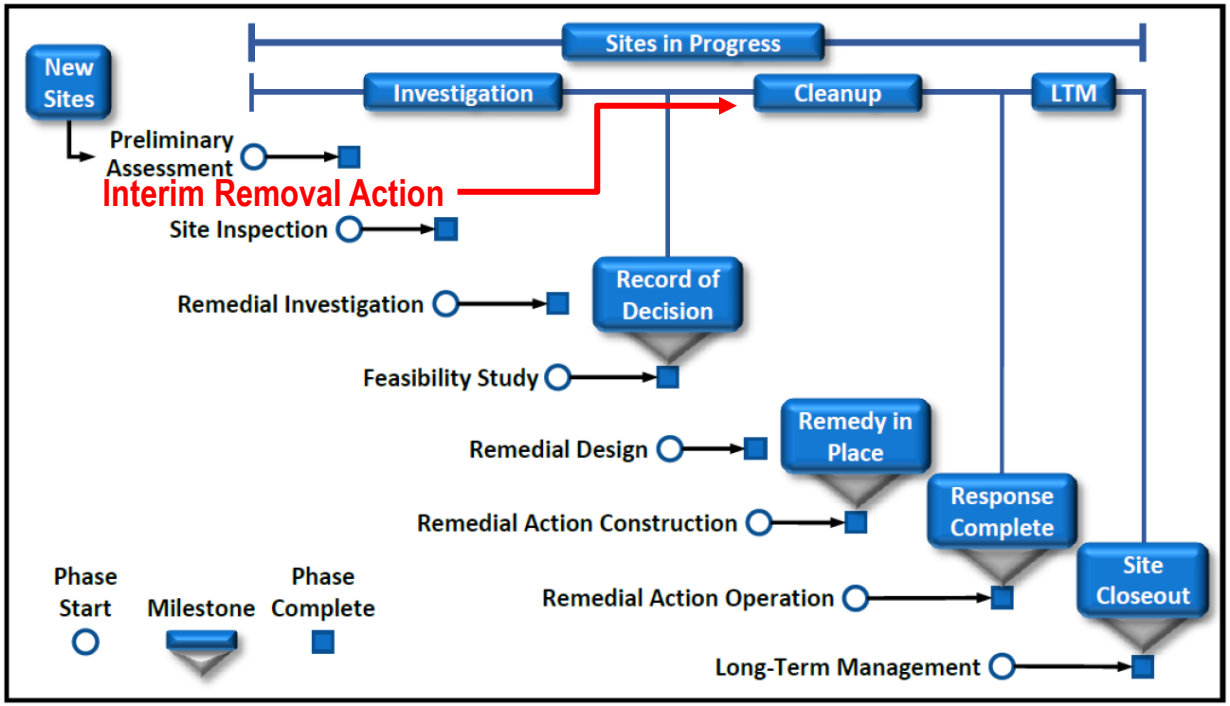
Station ID	CBD-AOA-SW20	
Sample ID	CBD-AOA-SW20-1021	CBD-AOA-SW20P-1021
Sample Date	10/04/21	10/04/21
Chemical Name		
PFAS (NG/L)		
PFHxS	1,650	1,750
PFNA	2,030	1,920
PFOS	10,100	10,300
PFOA	509	568
PFBS	71.5	79.6

Notes
Shading indicates exceedance of 10 x PFAS screening level
Bold text indicates detection
NG/L - Nanograms per liter
PFAS - Per- and Polyfluorinated Alkyl Substances
PFHxS - Perfluorohexanesulfonic acid
PFNA - Perfluorononanoic acid
PFOS - Perfluorooctane sulfonic acid
PFOA - Perfluorooctanoic acid
PFBS = Perfluorobutanesulfonic acid
Screening levels for PFOA, PFOS, PFBS, PFNA, and PFHxS are the May 2022 EPA Tap Water RSLs (based on HQ of 0.1) multiplied by 10.

Interim Removal Action Overview

- Site 10 SI and SSI sampling showed PFAS concentrations in the northern stream, the southern stream, and the WWTP influent and effluent which has off-base migration concerns.

Based on 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 Action Update

- Draft 60% Basis of Design submitted to regulators at the end of August 2023
- Final 60% Basis of Design anticipated in Fall 2023
- 100% Design currently being prepared and will quickly follow behind the Final 60% Basis of Design
- A Remedial Action Workplan will be prepared prior to construction activities
- The Action Memorandum is anticipated to be completed in early 2024
  - 30-day public comment period
- Construction anticipated to begin in Winter/Spring 2024

Questions and Comments

- Open to RAB Members for discussion of "Site 10 Supplemental Site Inspection Results" presentation.
- Questions from the public should be held to the end of the meeting.

Questions and Comments

Questions from Public Participants

Community Co-Chair Election

Amy Brand – Jacobs

Community Co-Chair Responsibilities

- Responsibilities of the Community Co-Chair include all responsibilities of a community RAB member as well as:
  - Determining the meeting agenda in coordination with the Navy Co-Chair
  - Acting as a focal point for community outreach
  - Acting as a RAB meeting facilitator (unless an outside facilitator if retained) and ensuring membership participation in an open and constructive manner.
  - Ensuring that community issues and concerns related to cleanup are fully addressed.
  - Assisting with dissemination of information to the RAB and to the public.
  - Sharing any concerns expressed by RAB members with the Navy Co-Chair.
  - Performing various administrative and coordination duties as needed.

Election Process

- Volunteers?
- The Community Co-Chair will be elected by a majority vote of the community RAB members.
- The Community Co-Chair will serve a two-year term.

Future Meeting Planning

- Per the charter, plan to meet 2 times per year
  - Navy proposes the next meeting for April 17, 2024
  - 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 – TBD

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