

# INSTALLATION RESTORATION PROGRAM



NAVAL SUPPORT FACILITY  
INDIAN HEAD  
3838 STRAUSS AVENUE  
INDIAN HEAD, MARYLAND  
20640-5133



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## RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES

**Date of Meeting:** October 9, 2024, 6 p.m.

### **RAB Member Attendees:**

Mr. Joseph Rail (N) \*  
Ms. Cassie Shoup (N) \*  
Mr. Curtis Detore (S)

### **Additional Attendees:**

Mr. Russell Ashley (S)	Mr. Andrew Revelos (N)
Mr. Andrew Louder (N)	Mr. Sean Mauro (N)
Ms. Tara Meadows (N)	Ms. Alexis Bryant (N)
Ms. Tara Carlson (C)	

### **RAB Members Not in Attendance:**

Mr. Robert Thomson (F)  
Mr. Charles Charlesworth (F)  
Ms. Karen Wigen (L)  
Mr. Fred Pinkney (F)

\* Co-chair

C= Community  
F= Federal Official  
K= Contractor  
L= Local Official  
N= Navy Official  
R= Newspaper Reporter  
S= State Official

### **Topics Discussed:**

#### 1. Arrival/Welcome

Mr. Joseph Rail of the Naval Facilities Engineering Systems Command, Washington (NAVFAC Washington) began the meeting by conducting introductions and welcoming everyone to the Indian Head Senior Center. Copies of RAB presentations and the agenda were offered to anyone in attendance. Mr. Rail then presented the meeting agenda, which is included in Attachment A.

#### 2. RAB Presentations

Presentations and updates were given by Mr. Rail, Ms. Shoup, and Mr. Louder of NAVFAC Washington. Mr. Rail presented the FY25 Budget Update and the Non-Time Critical Removal Action Update (Sites 43, 67 & 68). Mr. Louder presented the UXO 11 Remedial Investigation Update and the UXO 34 Green Water Area Update. Ms. Shoup presented the Site 77 Site Screening Process Results, Sites 17 & 47 Remedial Action-Operation updates, and the PFAS Demo Site Update. Copies of all presentations are included in Attachment D.

### 3. Comments, Questions and Answers

Any comments made or questions asked during the meeting were noted. These comments, questions and answers are provided in Attachment B. Additional correspondence concerning the Installation Restoration Program (IRP) or the Munitions Response Program (MRP) at the facility can be directed to:

Public Affairs Officer  
Naval Support Facility South Potomac  
Attn: Public Affairs Officer, Code 00P  
6509 Sampson Rd.  
Dahlgren, VA 22448-5108  
PHONE: (540) 653-8153  
FAX: (540) 653-4269  
Email: [andrew.j.revelos.civ@us.navy.mil](mailto:andrew.j.revelos.civ@us.navy.mil)

### 4. Meeting Adjourn

Mr. Rail presented the tentative agenda for the next RAB meeting, which is scheduled for October 15, 2025. A copy of the draft agenda is included in Attachment C. Mr. Rail then concluded the meeting at 8:00 pm and thanked everyone in attendance.

**NAVAL SUPPORT FACILITY INDIAN HEAD  
INSTALLATION RESTORATION (IR) PROGRAM  
RESTORATION ADVISORY BOARD (RAB) MEETING AGENDA**

October 9, 2024

<b>6:00 - 6:05 pm</b>	<b>ARRIVAL/WELCOME</b> Mr. Joseph Rail Naval Facilities Engineering Systems Command, Washington (NAVFACWASH) Remedial Project Manager
<b>6:05 – 6:15 pm</b>	<b><u>FY25 BUDGET UPDATE</u></b> Mr. Joseph Rail
<b>6:15 – 6:30 pm</b>	<b><u>NON-TIME-CRITICAL REMOVAL ACTION UPDATES (SITES 43, 67, &amp; 68)</u></b> Mr. Joseph Rail
<b>6:30 – 6:45 pm</b>	<b><u>UXO 11-THE VALLEY REMEDIAL INVESTIGATION UPDATE</u></b> Mr. Andrew Louder
<b>6:45 – 7:00 pm</b>	<b><u>UXO 34-GREEN WATER AREA UPDATE</u></b> Mr. Andrew Louder
<b>7:00 – 7:15 pm</b>	<b><u>SITE 77-FORMER FLY ASH AREA SITE SCREENING PROCESS RESULTS</u></b> Ms. Cassie Shoup
<b>7:15 – 7:30 pm</b>	<b><u>REMEDIAL ACTION-OPERATION UPDATES (SITES 17 &amp; 47)</u></b> Ms. Cassie Shoup
<b>7:30 – 7:45 pm</b>	<b><u>PFAS DEMO SITE UPDATE</u></b> Ms. Cassie Shoup
<b>7:45 pm</b>	<b>ADJOURN</b>

**Attachment A**

# INSTALLATION RESTORATION PROGRAM



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## RESTORATION ADVISORY BOARD (RAB) MEETING COMMENTS, QUESTIONS AND ANSWERS

October 9, 2024

### Arrival/Welcome

No questions were asked nor comments made during this topic.

### FY25 BUDGET UPDATE

Question: How does the budgeted money get broken up between the phases of CERCLA among all the sites?

Answer: Money is distributed to the highest priority sites that have an immediate need for funding. This varies site to site, but usually includes remedial investigations, feasibility studies, removal actions, and long-term monitoring.

### NON-TIME CRITICAL REMOVAL ACTION UPDATES (SITES 43, 67, & 68)

Question: What does non-time critical removal action mean?

Answer: It means that removal of a contaminant is required due to potential risk to human health or the environment and that the removal doesn't need to be completed immediately.

Question: What work remains to be completed at Site 43?

Answer: Site 43 needs some additional excavation within a roadway, backfilling, site restoration, paving work, and offsite disposal of stockpiled soil.

Question: Will Site 43 and 67 always have some sort of restrictions?

Answer: It's possible that groundwater restrictions may be in

**Attachment B**



effect for many years until contaminants attenuate to acceptable levels. Until that time, both sites cannot be designated as UU/UE (unlimited use/unrestricted exposure.)

### **UXO 11-THE VALLEY REMEDIAL INVESTIGATION UPDATE**

No questions were asked nor comments made during this topic.

### **UXO 34-GREEN WATER AREA UPDATE**

Question: Where did the name 'Green Water Area' come from?

Answer: Fluorescent green coloring was seen along the shoreline of this site, so it was named 'Green Water Area.'

Question: What is tracer dye?

Answer: Tracer dye is a biodegradable dye that can be used to track the flow of a material or item or to find leaks. One of its uses by the military was in munitions. It's suspected that munitions containing tracer dye were disposed along the shoreline of UXO 34 and are now leaking.

Question: Have there been explosive shots at UXO 34 that released green dye?

Answer: There is no historical knowledge or evidence of any explosive shots at this site.

Question: Is the green dye harmful to the environment?

Answer: This dye is not harmful to the environment. The risk with this site is the potential presence of discarded munitions which is being evaluated.

### **SITE 77-FORMER FLY ASH AREA SITE SCREENING PROCESS RESULTS**

Question: What is present in the main site photo?

Answer: The main photo shows a contrast of native (brown soil) vs. dark black soil that is believed to be fly ash.

Question: Was there ever any industrial use or operations at this site previously?

**Attachment B**

Answer: No, the site is a wooded area that underwent a stream restoration. During that effort, a potential dumping area of fly ash was discovered.

Question: Is there any general information that can be used when conducting investigations of sites like this?

Answer: Yes, we will look at historical records, interview base personnel, and review chronological aerial maps to see if dumping occurred over time.

### **REMEDIAL ACTION-OPERATION UPDATES (SITES 17 & 47)**

Question: For Site 17 monitoring wells, do you just make a best guess for installation locations to avoid erosion issues?

Answer: Well locations are strategically placed in the best areas to properly monitor a contamination plume. Unfortunately, Site 17 is in a low-elevation area that is prone to flooding and erosion.

Question: Will the Site 17 wells be sampled in perpetuity?

Answer: Wells will be sampled until contaminants attenuate to acceptable levels which may be many years, but not in perpetuity if the remedy is effective.

Question: How long has sampling been occurring at Site 17?

Answer: Long-term monitoring has been occurring since approximately 2012 following a pilot study.

### **PFAS DEMO SITE UPDATE**

Question: Does grass have to be used for this demo site?

Answer: Many types of plants/trees/vegetation were considered; however, grass was found to be the best choice for uptake of contamination at this site given site-specific conditions.

Question: What does the monitoring device look like?

Answer: Photos were shown of a drainage lysimeter (measures how water moves through soil) and pore water

**Attachment B**

sampler (extracts water from soil or sediment to measure water quality.)

Question: What kind of plants were shown in the photos?

Answer: The photos showed autumn bluegrass, zoysiagrass, and tall fescue.

Question: Is this demo site a candidate for an innovative technology award?

Answer: Use of phytoremediation to treat PFAS contamination can be considered innovative and its effectiveness at this site is to be determined. The results will determine how noteworthy this site will be.

### **GENERAL QUESTIONS**

Question: What determines the scheduling of RAB meetings in October?

Answer: RAB meetings are scheduled in October because it is the start of the new fiscal year where future-year funding has been set. Additionally, the Indian Head Installation Restoration Team meets during this time at the installation and regulators are present (EPA and MDE.)

Question: Who is the point of contact for public relations at Naval Support Facility, Indian Head?

Answer: Mr. Andrew Revelos is the Public Affairs Officer, and he can be reached at (540) 653-8153 or [andrew.j.revelos.civ@us.navy.mil](mailto:andrew.j.revelos.civ@us.navy.mil).

Question: Can you enlarge the photos in the presentations?

Answer: Yes, an effort will be made to use larger photos in future presentations.

**Attachment B**

**NAVAL SUPPORT FACILITY INDIAN HEAD**  
**INSTALLATION RESTORATION (IR) PROGRAM**  
**RESTORATION ADVISORY BOARD (RAB) **DRAFT** MEETING AGENDA**

October 15, 2025

<b>6:00 - 6:05 pm</b>	<b>ARRIVAL/WELCOME</b> Mr. Joseph Rail Naval Facilities Engineering Command, Washington (NAVFACWASH) Remedial Project Manager
<b>6:05 – 6:15 pm</b>	<b><u>FY26 BUDGET UPDATE</u></b> Mr. Joseph Rail
<b>6:15 – 6:30 pm</b>	<b><u>NON-TIME-CRITICAL REMOVAL ACTION UPDATES (SITES 43, 68, &amp; 69)</u></b> Mr. Joseph Rail
<b>6:30 – 6:45 pm</b>	<b><u>SITE 66-TURKEY RUN DISPOSAL ARA RI UPDATE</u></b> Mr. Andrew Louder
<b>6:45 – 7:00 pm</b>	<b><u>SITE 70-GROUNDWATER CONTAMINATION ALONG WATER WORKS WAY REMEDIAL INVESTIGATION UPDATE</u></b> Mr. Andrew Louder
<b>7:00 – 7:15 pm</b>	<b><u>PFAS SITE INSPECTION/REMEDIAL INVESTIGATION UPDATE</u></b> Ms. Cassie Shoup
<b>7:15 – 7:30 pm</b>	<b><u>UXO 9-SINGLE-BASE PROPELLANT GRAIN SPILL AREA SAMPLING UPDATE</u></b> Ms. Cassie Shoup
<b>7:30 – 7:45 pm</b>	<b><u>UXO 19-IGNITER AREA REMEDIAL INVESTIGATION UPDATE</u></b> Mr. Andrew Louder
<b>7:45 – 8:00 pm</b>	<b><u>STUMP NECK MRP UXO 27 &amp; 31 UNDERWATER REMEDIAL INVESTIGATION UPDATE</u></b> Mr. Joseph Rail
<b>8:00 pm</b>	<b>ADJOURN</b>

Attachment C

## **Attachment D- RAB Presentations**



# **FY25 BUDGET & SCHEDULE UPDATE**

**Presented By**  
**Joseph Rail**  
Naval Facilities Engineering Systems Command  
(NAVFAC) Washington

**10/09/24**

# FY25 Budget & Schedule Update



## **Approximate budget for FY 2025:**

- \$4.3 mil for Installation Restoration Program (IRP)
- \$6.1 mil for Munitions Response Program (MRP)

### **Planned work includes:**

- Preliminary Assessment/Site Inspection (PA/SI)
- Remedial Investigation/Feasibility Study (RI/FS)
- Remedial Design/ Record of Decision (RD/ROD)
- Remedial Action-Operation (RA-O)
- Long-Term Monitoring (LTM)

# FY25 Budget & Schedule Update



- **PA/SI for:**

- UXO 34 – Green Water Area

- **RI/FS for:**

- Site 66 – Turkey Run Disposal Area
- Site 77 – Former Fly Ash Area
- SWMU 14 – Photographic Lab Septic Tank System
- UXO 33- Water Impact Area

- **RD/ROD for:**

- Site 17 – Disposed Metal Parts Along Shoreline
- Site 47 – Mercuric Nitrate Disposal Area



# FY25 Budget & Schedule Update



- **RA-O for:**

- Site 17 – Disposed Metal Parts Along Shoreline
- Site 47 – Mercuric Nitrate Disposal Area
- Site 57 – Building 292 TCE Contamination

- **LTM for:**

- Site 11- Caffee Road Landfill
- Site 12- Town Gut Landfill
- Site 14- Lab Area
- Site 21- Bronson Road Landfill
- Site 28- Original Burning Ground
- Site 36- Closed Landfill
- Site 38- Rum Point Landfill
- Site 42- Olsen Road Landfill
- UXO 32- Scrap Yard

# Contacts and Questions



## Points of Contact:

- **NAVFAC Washington:** Joseph Rail
- **NAVFAC Washington (Base RPM):** Alexis Bryant

## Questions ?



# **Non-Time Critical Removal Action (NTCRA) UPDATE- Site 43, 67, & 68**

**Presented By  
Joseph Rail  
Naval Facilities Engineering Systems Command  
(NAVFAC) Washington**

**10/09/24**

# Site 43- Toluene Disposal Area



- Site 43 is located in the southern portion of the restricted area on Naval Support Facility Indian Head. It extends from east of Glennon Road proceeding westward toward the Potomac River shore.
- Previous investigations identified Trichloroethylene (TCE) in the soil. Current action is a non-time critical removal action (NTCRA) to address “hot spots” of TCE-impacted soils.



U.S. Navy

# Site 43 NTCRA Overview



**Selected Remedy-** Excavation and off-site disposal for soil only; groundwater to be addressed separately.

## **Removal Action Objectives (RAOs):**

- Reduce exposure risk to human receptors associated with inhalation, ingestion, or dermal exposure by addressing highest concentrations of TCE in groundwater and soil.
- Minimize potential leaching of TCE from impacted soil to groundwater in excess of cleanup levels.

## **Planned Removal Action Includes:**

- Established a Preliminary Remediation Goal (PRG) of 300 ug/kg for TCE.
- Excavate to approximately 8 feet below ground surface (bgs) for 5,156 cubic yards (CY) of contaminated soil and 118 CY of asphalt.
- Off-site disposal at a Subtitle D landfill.



# Site 43 NTCRA Overview



U.S. Navy

U.S. Navy



# Site 43 Current Status



## **Project Status:**

- Contract awarded in September 2021 for \$1.1 mil with a \$1.1 mil modification in August 2024.
- First phase of fieldwork began in November 2023 and ended in March 2024.
- Site access limited due to base operations (generation of explosive arcs) at Building 720.
- Fieldwork to resume in Fall 2024.
- To date, 4,900 C.Y. of contaminated soil has been excavated and stockpiled.

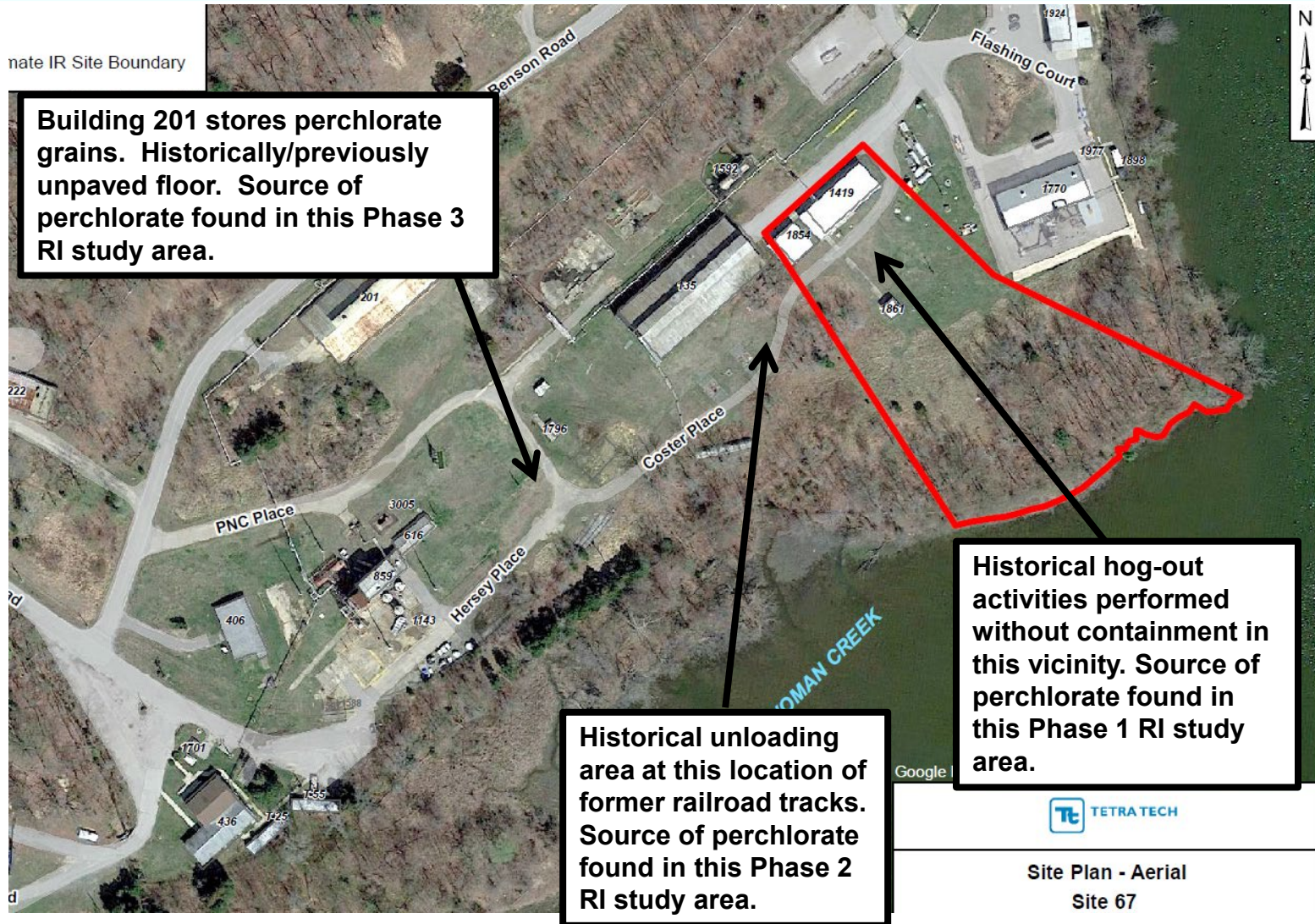


# Site 67- Hogout Facility



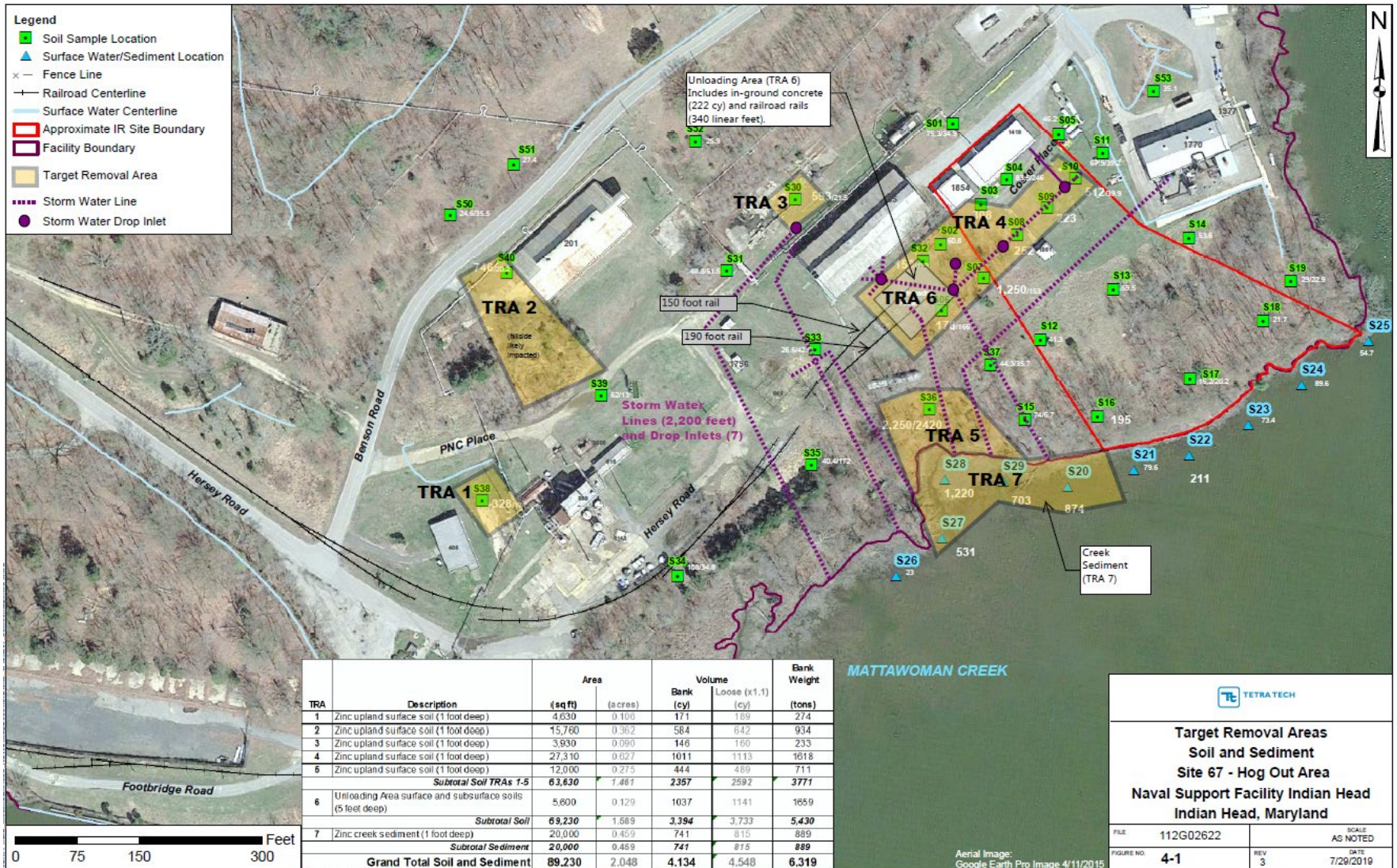


# Site 67- Hogout Facility





# Site 67 Target Removal Areas



# Site 67 Overview



## **Removal Action Objectives (RAO) included:**

- Reduce unacceptable risks to human and ecological receptors from exposure to chemicals of concern (COCs) in the Unloading Area soil.
- Reduce unacceptable risks to ecological receptors from exposure to zinc in surface soil and sediment.
- Reduce migration of zinc from upland soil to sediment in Mattawoman Creek.

**Selected remedy was excavation and off-site disposal for soil only.**

**NOTE: Groundwater to be addressed separately.**

# Site 67- Hogout Facility



## **Project Status:**

- NTCRA fieldwork began in February 2021.
- Transportation & Disposal (T&D) of on-site soils complete.
- Wetland restoration completed in September 2022.
- Additional contamination found in TRA 6 (mostly arsenic and lead) that didn't meet cleanup goals; will require additional investigation and characterization.
- Zinc remains a potential COC within TRA 7 and Mattawoman Creek; may be addressed by further studies/actions.
- Contract value- \$2.9 mil.
- NTCRA work completed in November 2023- included stormwater repair/pipe lining, tree planting, fence repair, and site restoration.

## **Future Work:**

- Sampling and Analysis Plan forthcoming to address additional contamination in soil and groundwater.
- Additional phase Remedial Investigation with a potential Baseline Ecological Risk Assessment (BERA).



# Site 67- Hogout Facility



U.S. Navy



U.S. Navy

# Site 68- Building 259



- Site 68 (old AOC 31)
- “Detonator Production / Old Storehouse”
- Former Building 259 (demolished)





# Site 68 Overview



**Selected Remedy-** Excavation and off-site disposal for soil.

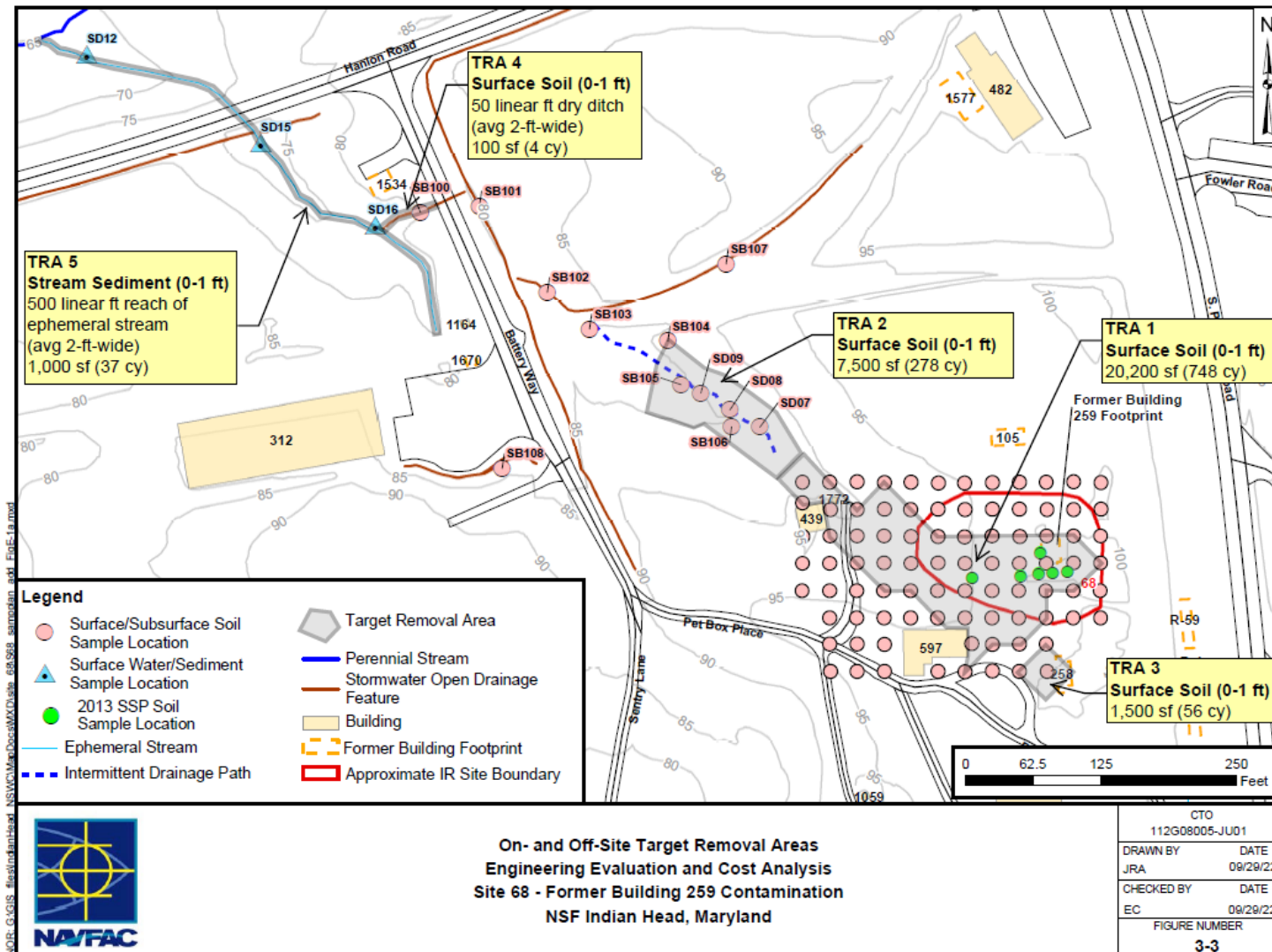
## **Removal Action Objectives (RAOs):**

- Reduce unacceptable risks to human and ecological receptors from exposure to lead and mercury contamination in soil.
- Mitigate the potential erosion of contaminated soil, transport of contaminants, and subsequent exposure.
- Ensure that post-removal action conditions provide an acceptable level of protection for ecological receptors against lead and mercury in soil and stream sediment.

## **Planned Removal Action Includes:**

- Established surface soil cleanup goal of 200 mg/kg for lead and 3 mg/kg for mercury. Stream sediment cleanup goal is 1.06 mg/kg for mercury.
- Excavate approximately 1,122 cubic yards (CY) of soil and sediment in five Target Removal Areas (TRAs).
- Off-site disposal at an appropriate facility.
- Work will result in unlimited use/unrestricted exposure (UU/UE).

# Site 68- Target Removal Areas



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# Site 68- Current Status



## **Project Status:**

- Contract awarded in January 2023 for \$412K.
- Engineering Evaluation/Cost Analysis (EE/CA) finalized in August 2023 and public review period from September 18 through October 17, 2023.
- Work Plan and Erosion and Sediment (E&S) Control Plan finalized in April 2024.
- Tentative start date of removal is late Fall 2024.
- Work anticipated to last 1 month.

# Site 68- Current Status



U.S. Navy

U.S. Navy



# Contacts and Questions



## Points of Contact:

- **NAVFAC Washington:** Joseph Rail
- **NAVFAC Washington (Base RPM):** Alexis Bryant

## Questions ?



**NAVFAC**  
Naval Facilities Engineering Systems Command

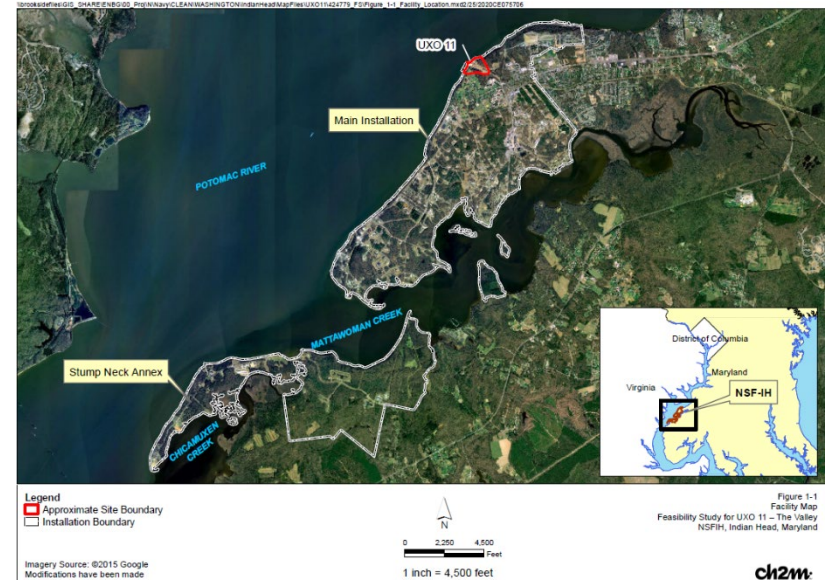
# Munition Response Site UXO 11 Path Forward

**Presented By**  
**Andrew Louder**  
**Naval Facilities Engineering Systems**  
**Command (NAVFAC) Washington**  
**10/9/24**



# Site Background-UXO 11

- UXO 11 is a 21-acre site adjacent to the Potomac River along the northwestern portion of the Main Installation. In the 1890s, the Bureau of Ordnance identified the site as ideal for testing guns and armor because the hills on both sides would absorb shots and potential explosions of new types of gun barrels. The site was used for developing and testing numerous ordnance items between 1891 and 1921, conducting jet propulsion research from 1940 through 1944, and proving various calibers of guns (1-inch through 16-inch), including various other projectiles and armor-piercing shells.
- Tested projectiles contained a variety of explosive fillers, including high explosives, and the projectiles tested ranged from 4 to 10 inches in diameter. Testing of cartridge cases, fuzes, primers, firing devices, gun implements, powders, steel armor plates intended for shipboard use, and experimental guns also was conducted.



# Site Background-UXO 11

## Sources of Contamination:

- Potential sources of chemical contamination at the site are from projectile, armor, and powder testing conducted into both hills at the site, and from testing in the Jet Propulsion Laboratory.

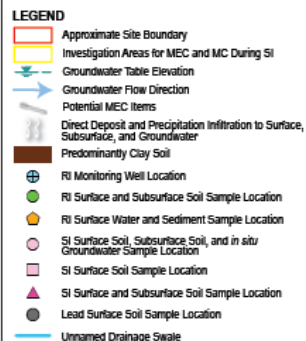
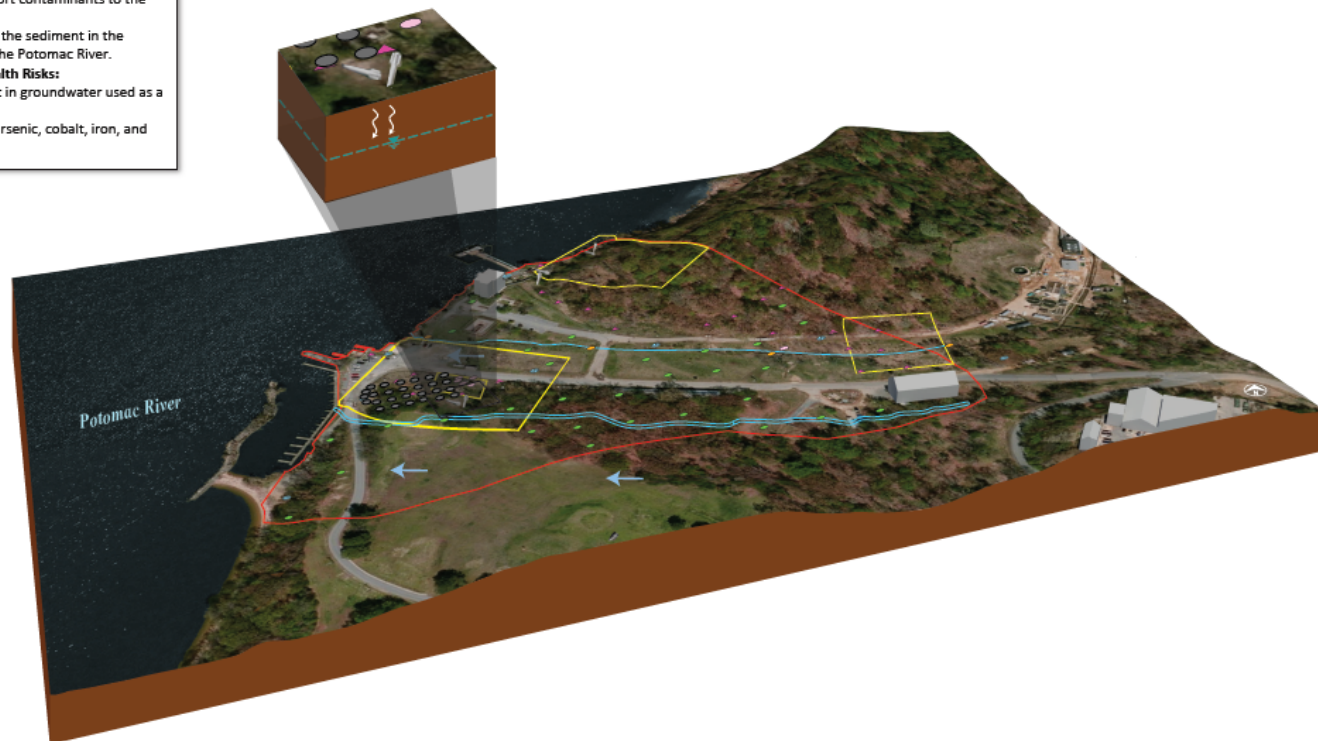
## Potential Migration Pathways:

- Precipitation infiltration may provide contaminant mobility into the subsurface soil and into the surficial groundwater aquifer, which may then transport contaminants to the Potomac River.

- Contaminants sorbed to soil may be mobilized and migrate to the sediment in the unnamed drainage swale, which may then be transported to the Potomac River.

## COCs Requiring Remediation Due to Unacceptable Human Health Risks:

- Future industrial workers from ingestion of arsenic and cobalt in groundwater used as a potable water supply.
- Future residents from ingestion of, and dermal contact with arsenic, cobalt, iron, and manganese in groundwater used as a potable water supply.



## NOTES

This figure is adapted from Figure 2-9 in the Feasibility Study for UXO 11 - The Valley. The sample locations shown on the figure were from the SI, RI, and lead delineation. Inset represents sources and potential transport mechanisms from any MEC items at UXO 11. Human receptors discussed in the box are those for which groundwater COCs requiring remediation were identified in the SRG technical memorandum.

Figure 3

## Conceptual Site Model

SAP UXO 11 Refinement of Remedial Alternatives for Feasibility Study  
NSFIH, Indian Head, Maryland

# Site Background-UXO 11



U.S. Navy

U.S. Navy



# UXO 11 Previous Investigations/Timeline

- A Draft Feasibility Study (FS) was paused due to concerns in the Shallow groundwater.
  - The FS is used to determine the path forward at the site and the Remedial Action Objectives.
- A geochemical investigation was done to determine whether the Contaminants of concern were naturally occurring in the groundwater.



# UXO 11 Geochemical Investigation Goal

- Determine if shallow groundwater COCs (arsenic, cobalt, iron, and manganese) concentrations that pose unacceptable human health risks are the result of a CERCLA release or are naturally occurring.

# Geochemistry Evaluation Approach

- General chemistry parameters and COCs run for each of eight UXO 11 well samples in 2022
- Compare geochemical properties in groundwater along the flow path towards Potomac River
- Use previous soil data to check for potential sources of COCs in groundwater
- Use all data to assess evidence for anthropogenic sources

# Geochemistry Fieldwork

- Conducted fieldwork from October to December 2022
- Collected 8 groundwater samples from existing permanent MWs and analyzed for:
  - Metal COCs: total and dissolved (arsenic, cobalt, iron, and manganese) to assess the existing groundwater conditions
  - Major Ions: total and dissolved metals (sodium, potassium, calcium, and magnesium) and wet chemistry (chloride, alkalinity, sulfate, dissolved silica, and total dissolved solids)
  - Redox Indicators: wet chemistry (nitrate, ammonia, sulfide, total organic carbon (TOC), and ferrous iron)
  - Natural tracers: total and dissolved metals (boron) and wet chemistry (fluoride)
- Advanced 8 DPT boreholes adjacent to the exiting monitoring wells
  - Three soil samples were collected from each borehole - surface soil sample from 0 to 1 foot below ground surface, subsurface soil sample above the water table (approximately 4 to 5 feet below ground surface), and a soil sample from within the aquifer matrix at a depth interval similar to that of the screened interval of the adjacent monitoring well.
  - Surface and subsurface soil samples were analyzed for the groundwater metal COCs (arsenic, cobalt, iron, and manganese) to assess the existing soil conditions.
  - Aquifer matrix soil samples were analyzed for groundwater metal COCs (arsenic, cobalt, iron, and manganese), sulfide content, TOC, sequential extraction (SE) analysis (metal COCs and aluminum), and X-ray diffraction (XRD) to determine if the metal COCs are naturally occurring.

# Geochemistry Field Work Cont'd

- The data collected during the fieldwork will be used to support decisions on remedial alternatives for metal contaminants of concern in the groundwater.
  - Documented in the Feasibility Study.
  - Preferred remedy in the Proposed Plan and record of decision.

# Geochemistry Conclusions

- Based on fieldwork sampling, the metals in groundwater are determined to be naturally occurring.
- No further action for metal COCs in the shallow groundwater.

# UXO 11 Path Forward

## Media Specific Remedial Action Objectives (RAO) and Remedial Alternatives (RAs)

- Munitions and Explosives of Concern (MEC)
  - RAO
    - Prevent or Prevent or minimize direct exposure by human receptors to MEC items at UXO 11 under the potential construction worker scenario
  - RAs
    - Alternative 1 – No action
    - Alternative 2 – Institutional Controls
- Lead in Surface and Subsurface Soil at ISUXO11-DP07, ISUXO11SO67, and ISUO11SO76
  - RAO
    - Reduce risks to current and future industrial workers, future construction workers, and future residents from incidental ingestion of, dermal contact with, and inhalation of particulate emissions of lead in the surface and subsurface soil at locations ISUXO11-DP07, ISUXO11SO67, and ISUXO11SO76.
  - RAs
    - Alternative 1 – No Action
    - Alternative 2 – Removal Action

# UXO 11 Path Forward

- Arsenic, Cobalt, Iron, and Manganese in Shallow Groundwater
  - Based on the Geochemical investigation and the conclusion of these COCs being naturally occurring, No Further Action is recommended for Shallow groundwater.

# Contacts and Questions

## Points of Contact:

- **NAVFAC Washington:** Andrew Louder
- **NAVFAC Washington (Base RPM):** Alexis Bryant

## Questions ?





**NAVFAC**  
Naval Facilities Engineering Systems Command

# Munition Response Site UXO 34-Green Water Area Site Investigation

**Presented By**

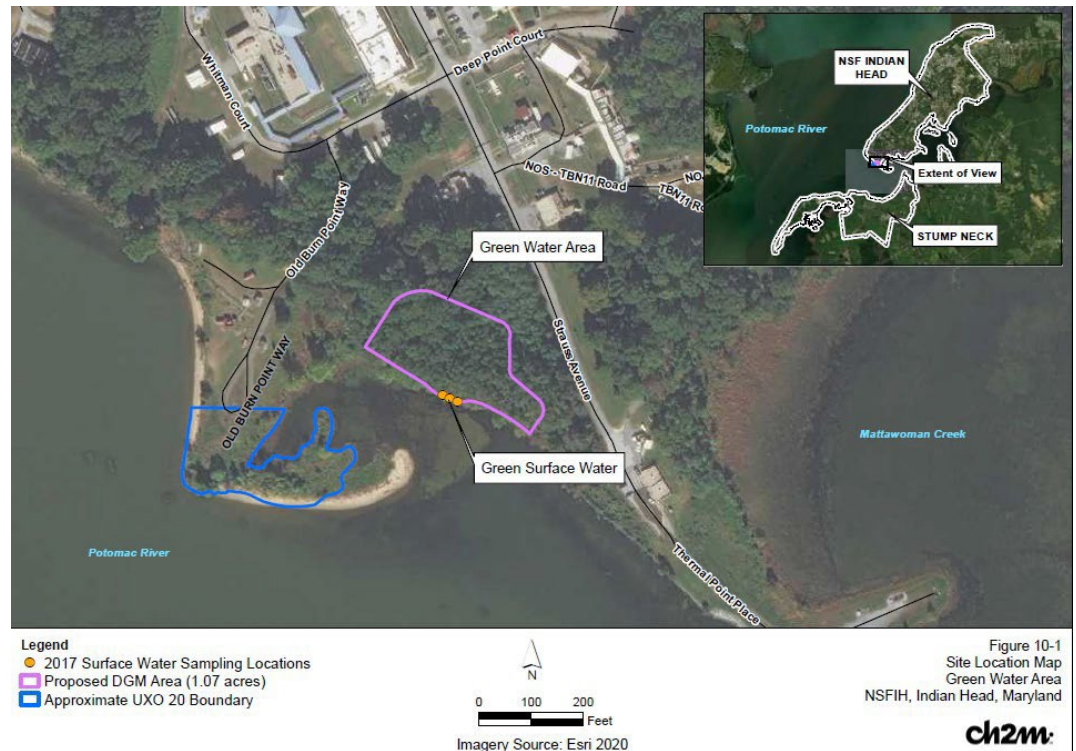
**Andrew Louder**

**Naval Facilities Engineering Systems  
Command (NAVFAC) Washington**

**10/9/24**

# Site Background-UXO 34

- UXO 34 -The Green Water Area is located along the shoreline of Mattawoman Creek near its junction with the Potomac River and near Unexploded Ordnance (UXO) Site 20 (UXO 20).
- During site visits at high tide, Base personnel observed green tracer dye emanating from the bank, approximately 10 feet laterally and 5 to 10 feet out into the Mattawoman Creek.
- Samples collected in this area indicated the presence of fluorescein dye. Based on installation history, munitions construction information, previous findings at other Department of the Navy installations, and results of surface water samples from the area, the coloration is likely fluorescein tracer dye used in practice bombs, possibly the Mk5, Mk23, or Mk43.





# Site Background-UXO 34



U.S. Navy



U.S. Navy



# UXO 34-Fieldwork

- The APEX is an Advanced Geophysical Classification (AGC) sensor built for dynamic classification of unexploded ordnance (UXO). The instrument comprises three multi-axis transmitters and measures the three vector components of the target's electromagnetic induction response at six receiver locations.
- The APEX generates a transient primary magnetic field, which induces eddy currents in nearby metallic objects.
- The APEX samples the decay of the secondary field created by these eddy currents during a period after the initial transmit field is turned off.
- The combination of multiple transmitter and receiver coils allows the system to both energize a buried target from multiple directions and to characterize the differences in the eddy currents generated, producing data that support the use of advanced classification methods.



U.S.  
Navy

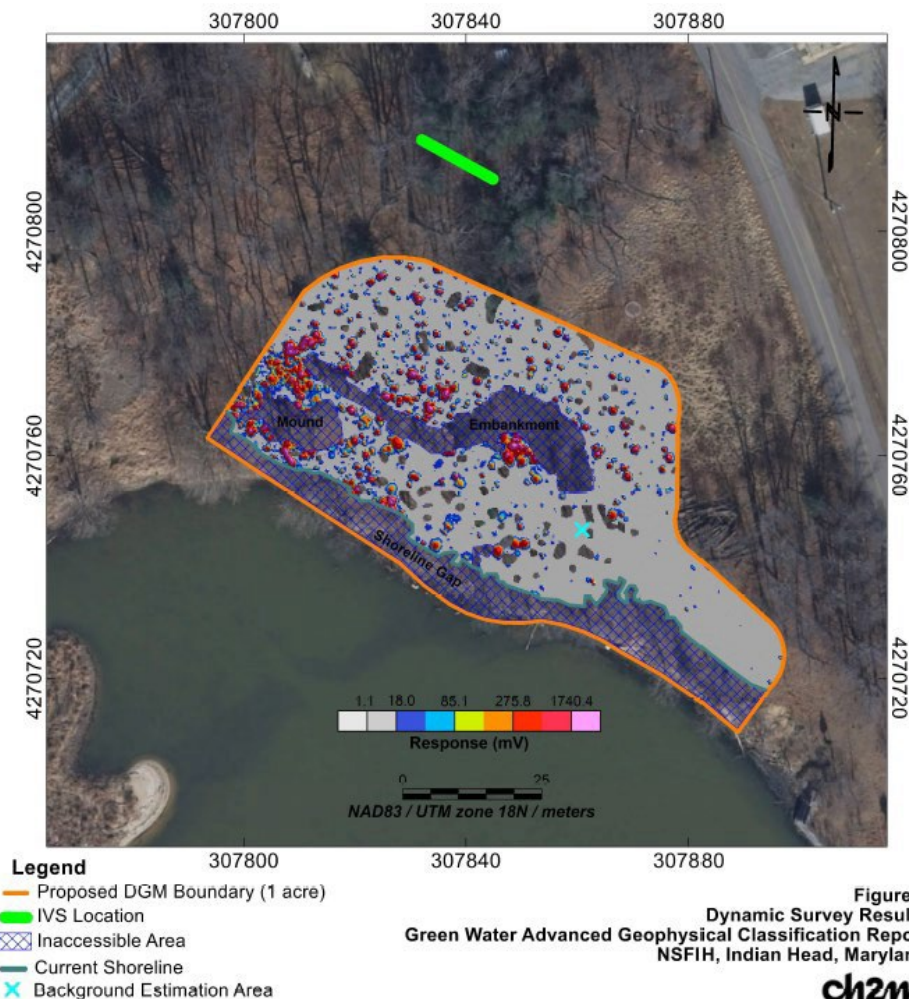


U.S. Navy



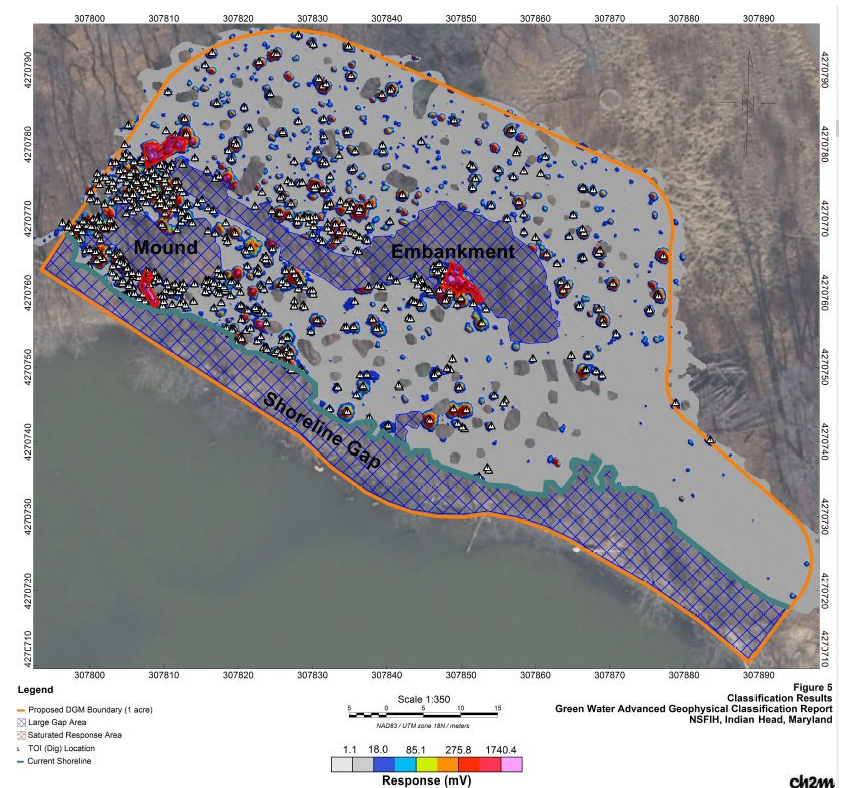
# UXO 34-Field Work Cont'd

- The objectives of the geophysical survey were as follows:
  - Confirm the presence or absence of potential MEC on the ground surface through a surface sweep.
- Establish the presence or absence of subsurface geophysical anomalies exhibiting the characteristics of a munitions item through the AGC process.



# UXO 34-Results

- The AGC survey resulted in approximately 0.73 acre of dynamic coverage.. Approximately 0.01 acre was identified as Saturated Response Areas (SRAs).
- SRAs were identified for areas where reliable detection and/or classification was not possible due to elevated response.
- Some of the SRAs identified within the survey area are associated with linear features that may represent subsurface utilities. These sources typically produce similar polarizabilities at different locations along the anomaly, indicating the object is large, such as a pipeline, and have consistent features over an extended area.
- Other SRAs in the survey area are associated with regular anomaly patterns that produce a large amplitude response over an extended area (for example, rebar mesh).



# UXO 34 Next Steps

- A draft Explosive Safety Submission (ESS) is currently under review.
  - An intrusive investigation will be conducted in the Spring/Summer of 2025 to investigate the subsurface anomalies.
  - The results of the Intrusive investigation will dictate the following site activities:
    - Environmental Sampling
    - Delineation of the extents of the site.

# Contacts and Questions

## Points of Contact:

- **NAVFAC Washington:** Andrew Louder
- **NAVFAC Washington (Base RPM):** Alexis Bryant

## Questions ?





# **NSF INDIAN HEAD – SITE 77 FORMER FLY ASH DISPOSAL AREA SITE SCREENING PROCESS (SSP)**

## **Presented By:**

Cassie Shoup, Remedial Project Manager (RPM)

Naval Facilities Engineering Command (NAVFAC) Washington

October 9, 2024

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# Objectives



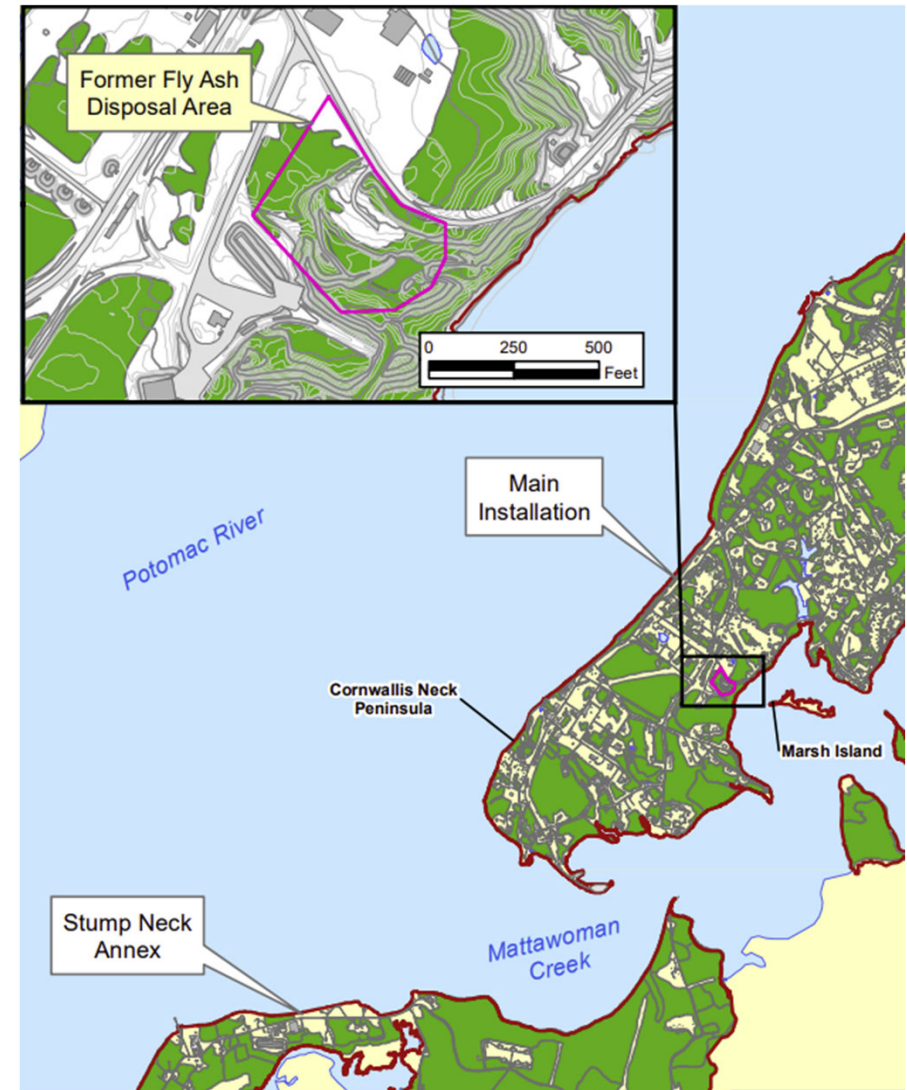
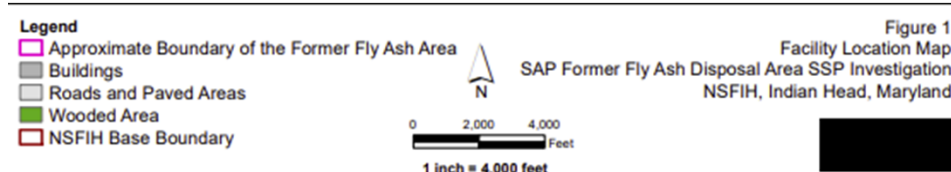
- Summarize the findings of the Site Screening Process (SSP) conducted at NSF Indian Head for Site 77 – Former Fly Ash Disposal Area
- Summarize the next steps for the Remedial Investigation (RI)



# Background



- 4.4-acre site in the southeastern portion of the Main Installation adjacent to Mattawoman Creek
- Fly ash piles were discovered during stream restoration activities
- Fly ash piles likely originated from the former Goddard Coal Power Plant
- No previous environmental investigations onsite aside from the collection of one fly ash sample in 2018





# SSP Goals



## The goals of Site Screening Process were to:

- Determine whether contaminants of potential concern (COPCs) are in site media (soil, sediment, shallow groundwater, surface water, fly ash) at concentrations warranting further Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) investigation
- Refine the understanding of site geology and hydrogeology to update the conceptual site model and support data



# SSP Scope

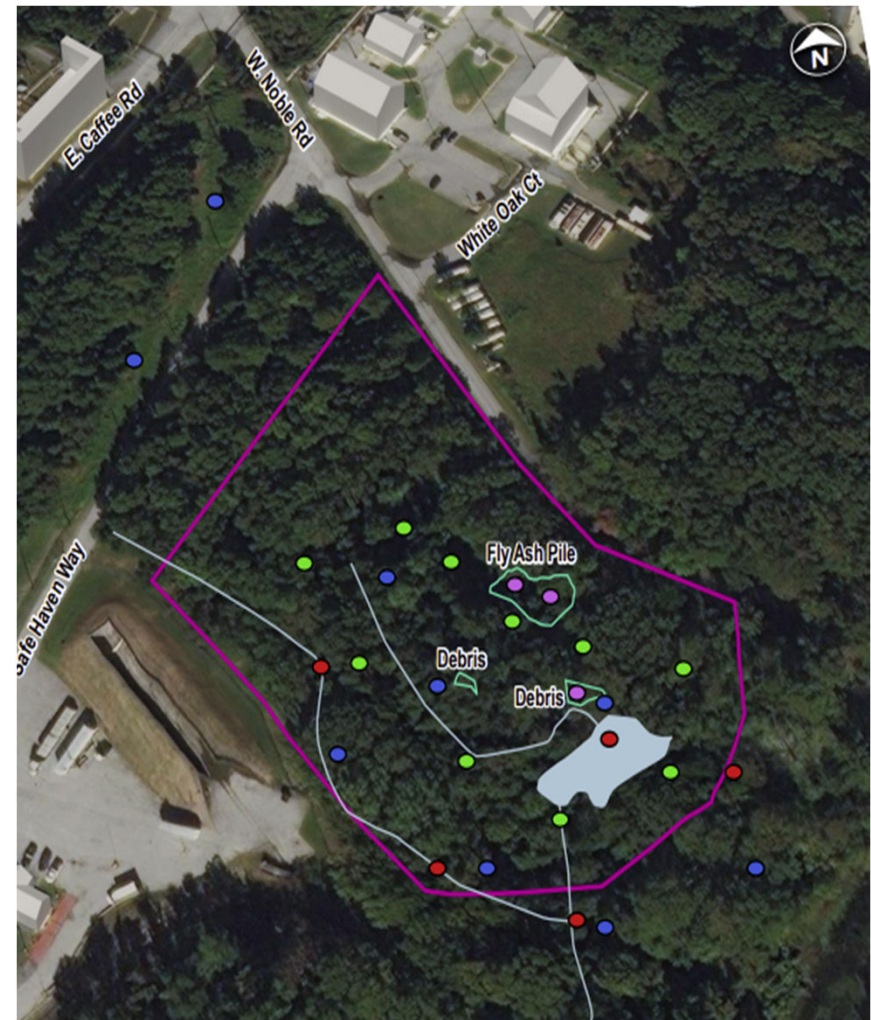


## Field Activities included:

- Utility clearing and survey marking
- Vegetation clearance
- Drilling
- Laboratory Analysis
- Sampling activities:
  - Surface soil (0-6") and subsurface soil (6-24")
  - Sediment
  - Grab groundwater
  - Ash

### LEGEND

- Approximate Boundary of the Former Fly Disposal Ash Area
- Feature Observed During Site Visit on April 18, 2022
- Pond and Stream
- Proposed Collocated Sediment/Surface Water Sample Location
- Proposed Collocated Surface/Subsurface Soil and Grab Groundwater Sample Location
- Proposed Collocated Surface/Subsurface Soil Sample Location
- Proposed Fly Ash Sample Locations



Note: Surface water not present during sample collection



# SSP Results and Recommendations



Based upon HHRS and SERA, the SSP recommends a Remedial Investigation (RI) to determine the nature and extent of COPCs in:

- **Surface soil**
  - Metals, explosives, SVOCs and pesticides
- **Subsurface soil**
  - Metals, explosives, SVOCs and pesticides
- **Groundwater**
  - VOCs, SVOCs, explosives  
(including PETN, NG, NC, and NQ), pesticides,  
perchlorate, dioxins, furans, and metals (total and dissolved)
- **Sediment**
  - Metals
- **Fly Ash**
  - TCL VOCs and TAL metals
- **Surface Water**
  - Same as groundwater



# RI Next Steps



**The RI will further characterize the nature and extent of COPCs, further develop site geology and hydrogeology knowledge, and will help determine the need for potential remedial actions**

## **Following regulatory concurrence of the SSP, next steps include:**

- Complete RI Sampling and Analysis Plan (UFP-SAP)
- Update Health and Safety Plan (HASP)
- Conduct field activities
- Produce RI Report

## **Timeline for RI:**

- Finalize SSP Report (anticipated) – March 2025
- Finalize RI UFP-SAP (anticipated) – April 2026
- Conduct RI Fieldwork (anticipated) – April 2026 to October 2026

**All finalized CERCLA process documents are available for the public to view on Navy's Environmental Restoration website for NSF Indian Head. Please visit:**

**<http://go.usa.gov/DyQF>**

# Contacts and Questions



## Points of Contact:

### **NAVFAC Washington Remedial Project Manager:**

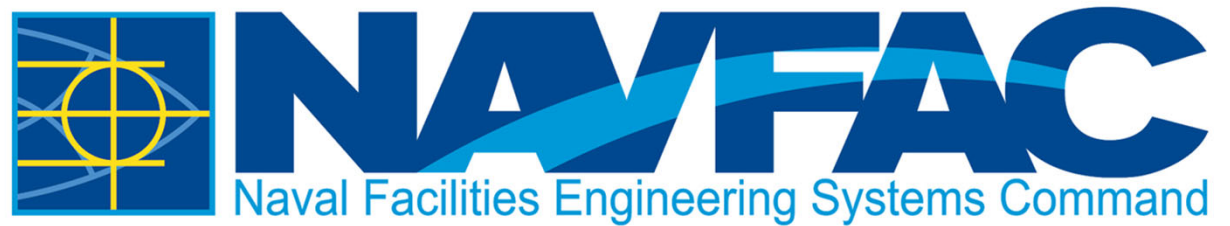
Cassie Shoup, email: [cassandra.l.shoup.civ@us.navy.mil](mailto:cassandra.l.shoup.civ@us.navy.mil)

Sean Mauro, email: [sean.m.mauro.civ@us.navy.mil](mailto:sean.m.mauro.civ@us.navy.mil)

### **Indian Head PM:**

Alexis L. Bryant, email: [alexis.l.bryant2.civ@us.navy.mil](mailto:alexis.l.bryant2.civ@us.navy.mil)

## Questions?



## **NSFIH SITES 17 AND 47 FIELD WORK UPDATES**

**Presented By  
Cassandra Shoup  
Naval Facilities Engineering Systems  
Command (NAVFAC) Washington  
October 9, 2024**

# Site 17 South Plume Delineation



## Site Location





# Site 17 Field Activities

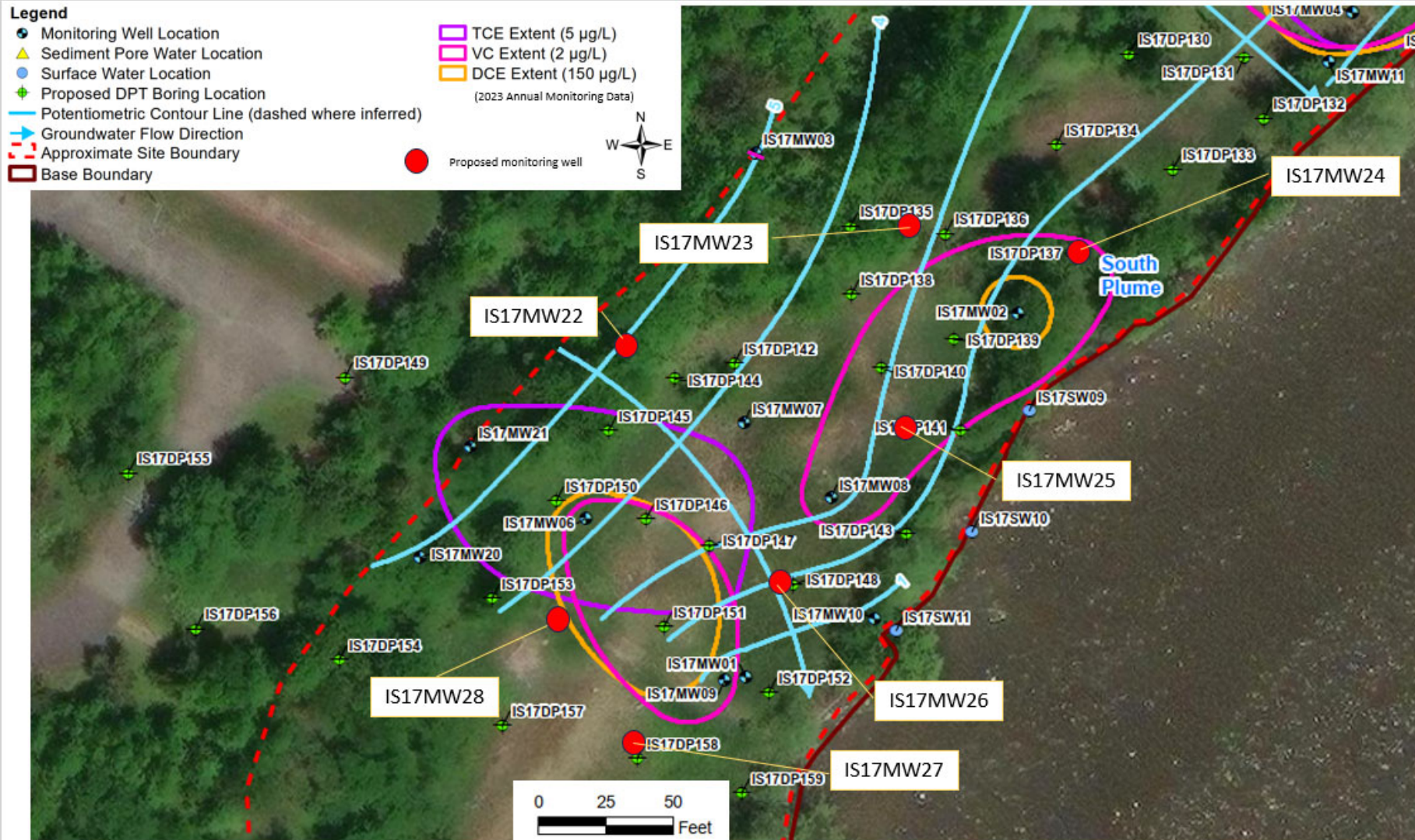


**Objective:** To refine the lateral extent of groundwater contaminants in surface soil, subsurface soil, and groundwater in the South Plume

- **Membrane interface probe and hydraulic profiling tool technology (MiHPT)**
  - Collect data on the physical characteristics of the subsurface
- **Direct-push technology (DPT)**
  - Collect collocated surface soil, subsurface soil, and grab groundwater samples at each location
  - Soil samples analyzed for site contaminants, total organic carbon, and bulk density
  - Grab groundwater samples analyzed for site contaminants
- **Permanent monitoring wells**
  - 7 monitoring wells installed at locations based on the MiHPT and DPT sampling analytical results
  - Those wells will be included in the annual monitoring well network for sampling



# Site 17 Monitoring Well Locations



## Site 17 Next Steps



- **South Plume Delineation**

- Prepare draft and final versions of a report

- **2024 Annual Monitoring**

- Prepare draft and final versions of a report

- **Consider impacts from changing site conditions from shoreline erosion. Impacts access to porewater sample locations, near-shore monitoring wells, and marshy areas**



### Objectives:

- **Determine whether injection will be effective as a full-scale remedy optimization for groundwater contaminants**
- **Evaluate the effect of injection on the mobilization of the metal contaminants and mercury in the shallow groundwater.**

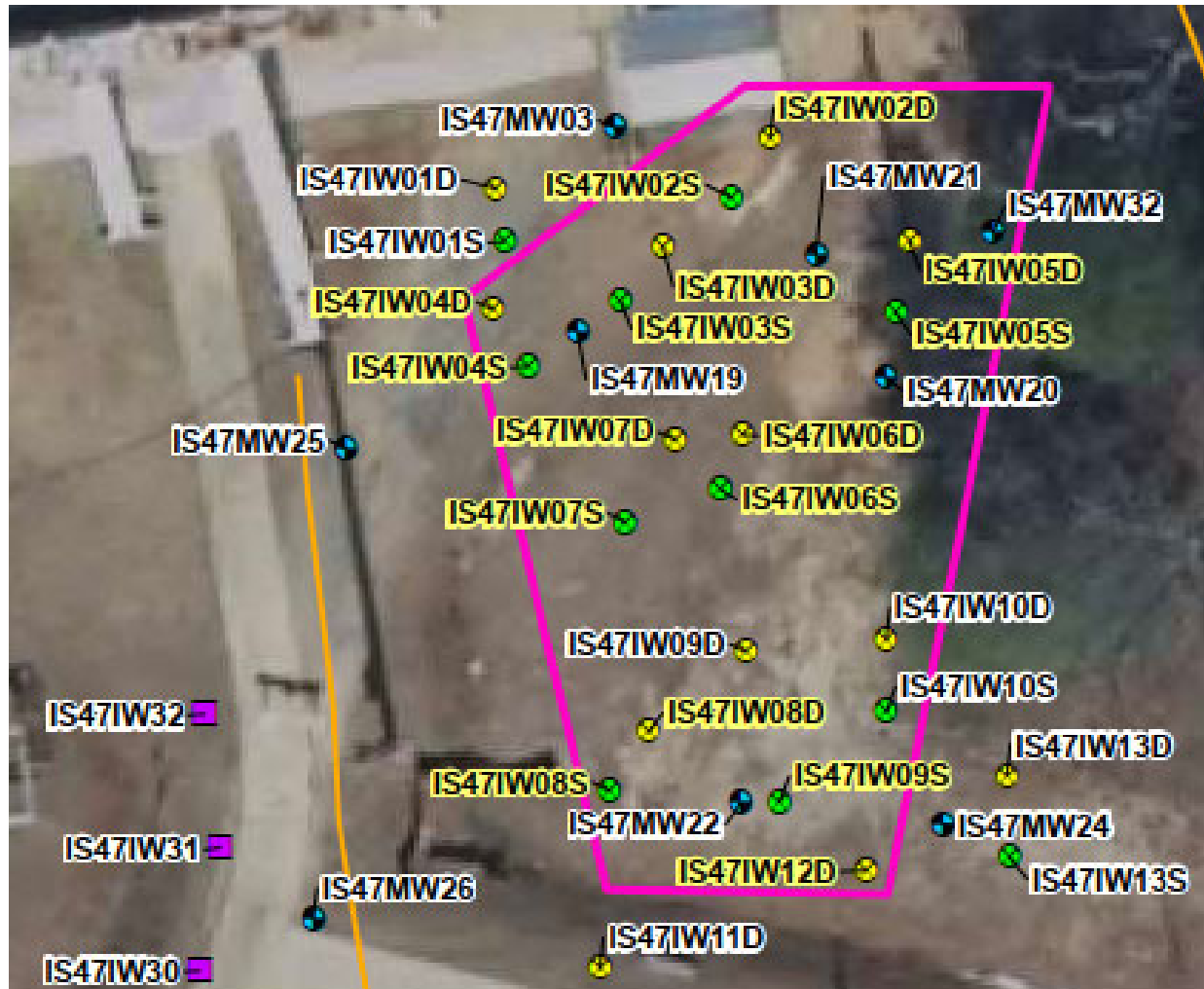
## Site 47 Approach



- **Establish baseline conditions before conducting the injection by collecting and analyzing groundwater from:**
  - 5 existing monitoring wells in the pilot study area
    - Geochemical parameters, contaminants, degradation products and related co-contaminants, metals
  - 17 shallow wells, 14 deep wells
- **Injections of sulfated Zero Valent Iron (ZVI) in up to 16 wells**
- **Preform post-injection performance monitoring (3-, 6-, 9- and 12-months) using the five permanent monitoring wells**



## Site 47 Study Area



### Legend

- Injection Well Location
- Monitoring Well Location
- Shallow Permanent Injection Well (6-12' bgs)
- Deep Permanent Injection Well (12-18' bgs)
- Proposed Pilot Study Area

## Site 47 Pilot Study Status



- **October/November 2022 - Injection wells were redeveloped, and baseline sampling completed**
  - Injection wells used in the injection (14 shallow, 14 deep)
  - 3 injection wells not used for injection, but sampled
  - 5 permanent monitoring wells sampled
- **October 23 – November 3, 2023 – Injections Completed**
  - The 5 permanent monitoring wells were resampled for baseline data in October 2023
  - Use of Regensis' custom state of the art inline blending system
  - System combined ZVI and potable water to produce a solution for direct application



- **Post-injection Performance Monitoring Schedule (3-, 6-, 9- and 12-months)**
  - February 2024
  - May 2024
  - August 2024
  - November 2024
- **Draft Pilot Study Report - Anticipated in June 2025**



### **Points of Contact:**

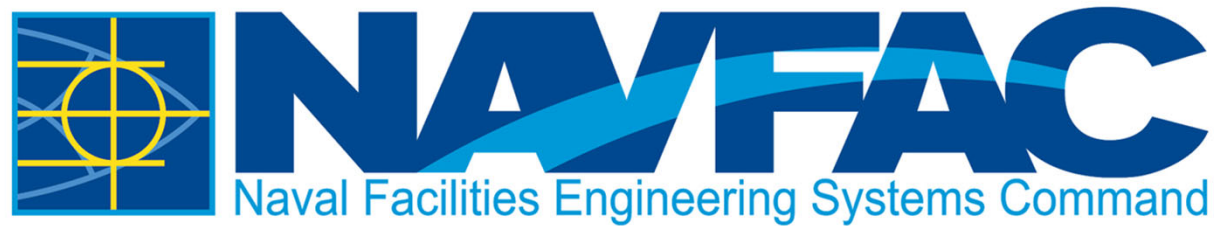
#### **NAVFAC Washington Remedial Project Manager:**

- Cassie Shoup, email: [cassandra.l.shoup.civ@us.navy.mil](mailto:cassandra.l.shoup.civ@us.navy.mil)

#### **Indian Head PM:**

- Alexis L. Bryant, email: [alexis.l.bryant2.civ@us.navy.mil](mailto:alexis.l.bryant2.civ@us.navy.mil)

## **Questions?**



## **ESTCP Project - Phytoremediation for shallow sources of per- and polyfluoroalkyl substances (PFAS) impacting groundwater**

**Presented By  
Cassandra Shoup  
Naval Facilities Engineering Systems  
Command (NAVFAC) Washington  
October 9, 2024**



# ESTCP Project Objectives



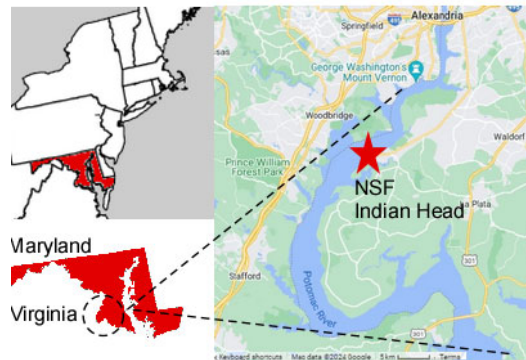
**Primary goal: Demonstrate phytoremediation approaches for managing shallow soils impacted by PFAS to significantly reduce PFAS source migration to groundwater**

- **Plant impact on water balance to limit downward migration of PFAS**
- **PFAS migration as a function of plant species**
- **PFAS uptake into the plant species**

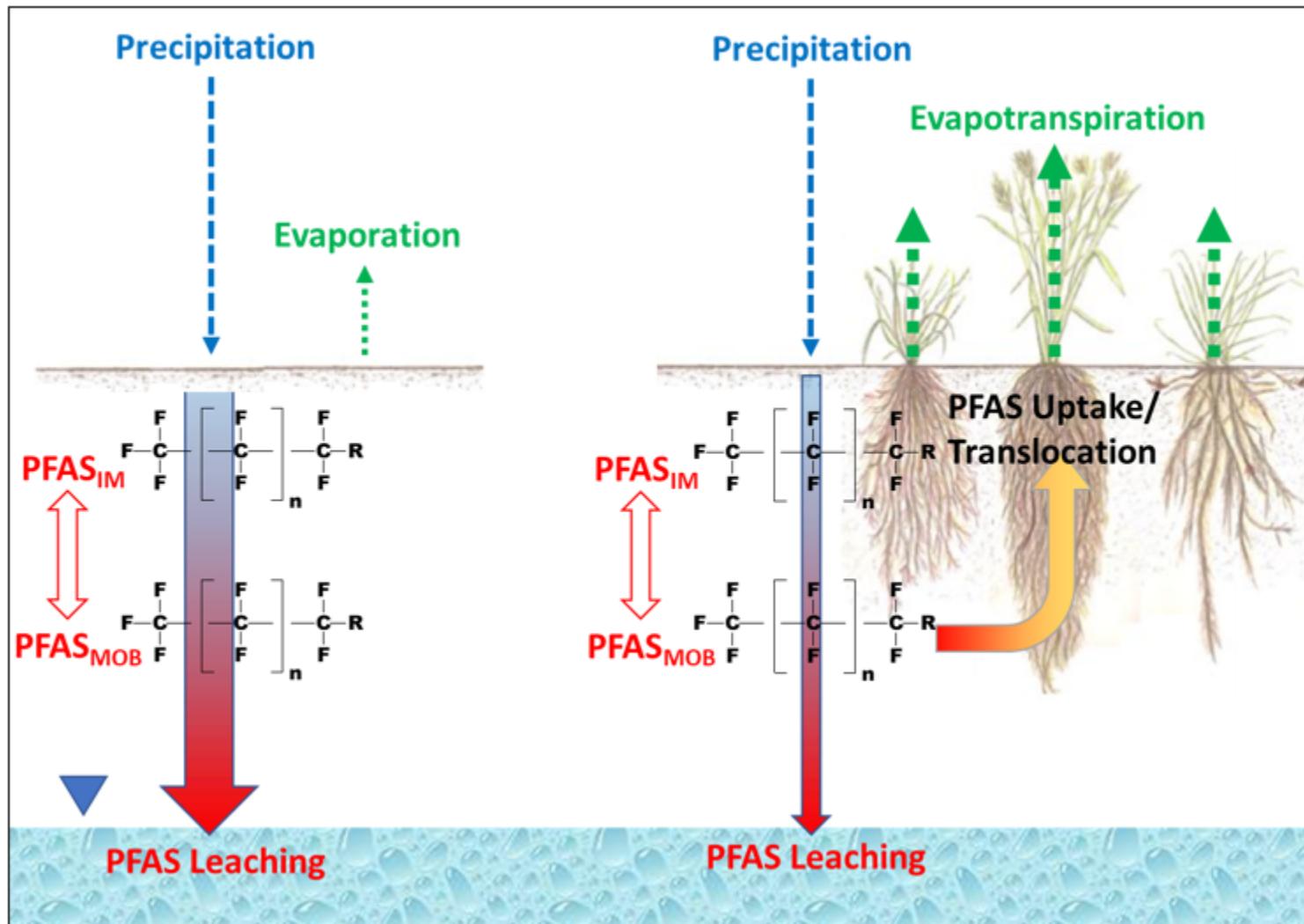
# Site Location and Description



**Site 72 - Main Firehouse is located in the northeast section of Naval Support Facility Indian Head.**



# Technology/Methodology Description





# Treatability Study



The following plant species may be evaluated

- **Native species**

- autumn bentgrass (*Agrostis perennans*)
- zoysiagrass (*Zoysia japonica*, *Z. matrella*, or *Z. tenuifolia*)
- bahiagrass (*Paspalum notatum*)



- **Non-native species**

- bermuda grass (*Cynodon dactylon*)
- tall fescue (*Festuca arundinacea*)





# Test Design



- **General Demonstration Plan**
  - 18 plots approximately 10 x 10 ft each
  - 6 treatments applied to 3 replicate plots
  - Each plot instrumented with drainage lysimeter and pore water sampler
  - Contaminated soil will be homogenized (e.g., rototilled)
  - Groundwater monitoring well and weather station



# Test Design



## Sampling and Evaluation

- **2+ year observation effort**
- **6x per year - plant tissues, drainage and soil water**
- **1x per year - soils, roots**
- **PFAS analytes including TOP**





### Points of Contact:

#### **NAVFAC Washington Remedial Project Manager:**

- Cassie Shoup, email:

cassandra.l.shoup.civ@us.navy.mil

#### **Indian Head PM:**

- Alexis L. Bryant, email: alexis.l.bryant2.civ@us.navy.mil

## Questions?