87th Air Base Wing

Joint Base McGuire-Dix-Lakehurst
Restoration Advisory Board
07 Aug 2025

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87th Air Base Wing

Welcome and Introductions
Review of hybrid RAB meeting format

Mr. James Richman

Remediation Program Manager, AFCEC/CZOE

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Community Engagement Events

- **Last Restoration Advisory Board (RAB): 01 May 2025**
  - **Public Comments were addressed at the meeting and included in the RAB minutes**
  - **Action Item:**
    - **TAPP**

Announcements & Availability

- Public Notices (PN)
  - Burlington County Times
  - Asbury Park Press
  - Pine Barrens Tribune
  - JB MDL RAB website: https://envirorestorejbmdl.com/
    - RAB presentation and minutes
    - PN
    - Limited CERCLA document requiring public notification
- Document Availability:
  - Burlington County Library (Westampton, NJ)
  - Ocean County Library (Toms River, NJ)
  - Air Force Administrative Record: https://ar.cce.af.mil/

PLANNED PRESENTATION TOPICS

- **Technical Assistance for Public Participation**
- **Engineering Evaluation/Cost Analysis – Off-base Drinking Water**
- **PFAS RI – Lakehurst Area**

•OU – Operable Unit
•PFAS – Per- and polyfluoroalkyl substances

* Topic Presented Time Permitting

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Overview of Technical Assistance for Public Participation (TAPP)

Ms. Jalise Wright

Environmental Scientist, AFCEC/CZO Contract Support

Purpose of Presentation

- **Regulation**
  - 10 U.S. Code Section 2705
  - 32 Code of Federal Regulations (CFR) part 203
  - DoD Manual 4715.20 (DERP)
- **It's for YOU:**
  - Very beneficial to join a RAB!
  - Communication is essential
  - DoD provides technical assistance during cleanups

What's a TAPP?

- **TAPP is a DoD program to help the RAB and public achieve a better understanding of complex and technical cleanups**
- **Eligible TAPP projects:**
  - **Interpret technical documents into plain language**
  - **Assess technologies**
  - **Explain risk and/or health assessments**
  - **Training, as requested, by the RAB**

- **Who's eligible to join TAPP?**
- **If you are a community member, who is also a member of a RAB**

Why TAPP?

- **It's for you! Wouldn't it help to….?**
  - **Have Technical Assistance help your RAB?**
  - **Have a technical expert report back content in non-technical language?**
  - **Have an expert report risk assessment back in non-tech explanation of health risks?**
  - **To have training on concepts such as how contaminants move through groundwater, how risk assessments are performed, how potential remedies are evaluated, how plume maps are created, etc.?**

Not Eligible for TAPP Funding

- Litigation
  - Attorney fees
- Lobbying
  - Political activities
- Public outreach
- New data generation
  - More sampling
- Re-opening final DoD decisions
- Epidemiology
  - Health studies

Is there a dollar limit?

- $25,000/fiscal year for each installation, OR
- $100,000 over the life of the ERP
- From ERP or BRAC account as program admin cost
  - No guaranteed or automatic funding allocation or separate account
- Waiver to exceed these limits or to appeal DoD decision on TAPP request, are available, if necessary

- TAPP Funding Limits:
  - Page 84 of DoD Manual 4715.20:
    - https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodm/471520m.pdf

Before You Apply for TAPP

- **Alternate Sources:**
  - Federal, state, and local regulatory staff
  - Local university resource staff
  - RAB members
  - National/regional resources
- **Other Programs to Consider:**
  - Technical Assistance Grant (TAG):

    https://www.epa.gov/superfund/technical-assistance-grant-tag-program
  - Technical Assistance Services for Communities (TASC):
    https://www.epa.gov/superfund/technical-assistance-services-communities-tasc-program
  - Technical Assistance Plan (TAP): https://www.epa.gov/superfund/technical-assistance-plan-tap

Reporting Requirements

- **Technical assistant (TA):**
  - **Completes majority of periodic progress reports, financial status, and materials prepared for the contract, except…**
- **RAB POC**
  - **Annual Report, per DERP**
  - **End of Contract:**
    - **Final report: description of TAPP project, summary of services, overall satisfaction of RAB with quality of provided services/products**

TAPP – Technical Assistance for Public Participation
POC – Point of Contact
DERP – Defense Environmental Restoration Program

When to Apply?

- **Use your judgment:**
  - **When will technical assistance be needed vs. when to apply**
    - **Ex. Is there a DoD action related to an investigation that you could use assistance through TAPP?**
  - **Community Co-chair and Installation Co-chair determines timing of actions and start date to apply for TAPP as soon as possible**
    - **RAB should consider processing time and schedule to award contract**

How to Apply?

- Document your majority decision to request TAPP funding at your next RAB/TRC meeting. Record your vote in the meeting minutes and attach the meeting minutes to the application.
- Notify the Installation Co-chair with your intent to pursue TAPP funds.
- Fill out the official TAPP Application: https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2749.pdf
- Reference the Practical Guide for detailed instructions on completing the application: https://www.acq.osd.mil/eie/eer/ecc/pfas/po/cir.html

TECHNICAL ASSISTANCE FOR PUBLIC PARTICIPATION (TAPP) APPLICATION

OMB No. 0704-0392
OMB approval expires Nov 30, 2025

The public reporting burden for this collection of information, 0704-0392, is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Washington Headquarters Services, at whs.mcalex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

RETURN COMPLETED FORM TO INSTALLATION LISTED IN SECTION I, BLOCK 1.

SECTION I - TAPP REQUEST SOURCE IDENTIFICATION DATA

1. INSTALLATION
Installation Name

2. SOURCE OF TAPP REQUEST *(Name of Restoration Advisory Board (RAB) or Technical Review Committee (TRC))*
Installation RAB

3. CERTIFICATION OF MAJORITY REQUEST
See attached meeting minutes/vote

4. DATE OF REQUEST *(YYYYMMDD)*
20230731

5. RAB POINT OF CONTACT

a. NAME *(Last, First, Middle Initial)*
Smith, John, A.

b. ADDRESS *(Street, Apt. or Suite Number, City, State, ZIP Code)*
1234 Anywhere Street
Bumbville, MA 45454

c. TELEPHONE NUMBER *(Include Area Code)*
555-555-5555

SECTION II - TAPP PROJECT DESCRIPTION

6. PROJECT TITLE
Independent Interpretation of Technical Documents by Local Experts

7. PROJECT TYPE *(Data Interpretation, Training, etc.)*
Data & Technical Document Interpretation

8. PROJECT PURPOSE AND DESCRIPTION *(State anticipated goals of project and relate to increased understanding/participation in restoration process at the installation. Include descriptions, locations, and timetables of products or services requested.)*
Purpose: To educate RAB members about the Installation Name-related PFAS contamination, in preparation for the RI work plan review.
Description: Review the Final Expanded Site Inspection Report for PFAS (document, 2020), MA DEP NOES, and Private Well Sampling Results (2017-Present), Final Phase I Regional Site Inspection Report for Perfluorinated Compounds (Company, 2018), and Final Perfluorinated Compounds Preliminary Assessment Site Visit Report (Company, 2006). Provide RAB members a report and presentation with Q&A of independent interpretation and summary of the conclusions including, but not limited to, extracting and explaining what has been found out about the plume(s), characteristics, size/fate/transport/migration/profile/etc. Provide the RAB with progress reports at regular RAB meetings, and a final report and presentation by September 30, 2024.

9. STATEMENT OF ELIGIBILITY *(Refer to eligibility criteria in 32 CFR Section 203.10 and 203.11 of TAPP rule. Note other sources that were considered for this support and state reasons why these sources are inadequate.)*
This project is listed as eligible under 32 CFR Section 203.10(b)(1) "Interpret Technical Documents [...] Technical assistance may be provided to review plans and interpret technical reports for community members of RABs and TRCs. These reports include, but are not limited to: (i) installation restoration program site studies, engineering documents, such as site inspections..." Residents and these and other experts have already been donating their time and talents toward educating the community about this contamination. The complexity and volume of work is overwhelming for the spare time that can be donated; therefore, their time needs to be compensated in an official capacity to achieve the goal of RAB education and readiness so the RAB members can be full participants in the cleanup process.

10. ADDITIONAL QUALIFICATIONS OR CRITERIA TO BE CONSIDERED *(Additional qualifications (beyond those specified in Section 203.12) a provider should demonstrate to perform the project to the satisfaction of the RAB/TRC. Attach separate statement, if necessary.)*
The attached documents list the ways in which the experts are impeccably qualified under 32 CFR Section 203.12. Further, these experts have been providing this assistance to the community on a volunteer basis; it is not justifiable for them to continue providing this service without being compensated. They have earned the respect of the community, have clear command of the material and field of study, and no other provider could get up to speed on this particular site as quickly.

How to Apply? Cont'd

Block 8

Example 2: "We would like a technical assistant to review and explain the baseline risk assessment recently completed for Operable Unit X. We would like an explanation of the risks to human health and the environment at the site, especially to nearby residents. We would like to better understand how those data are collected and what they mean. This assistant would report to us at the Month/Date/Year RAB meeting. This will help to answer many questions the community has regarding the risks and will help them better understand how cleanup actions will help to address that risk."

Example 3: "We are seeking this assistance to gain a better understanding of the recently completed Five-Year Review (FYR). We would like assistance with understanding what the FYR's findings say about the success of the cleanup operations to date and to understand the recommendations outlined in the report. We would like the technical assistant to give a presentation to the RAB at the first RAB meeting following the start of the contract. We would like the technical assistant to provide a one- to two-page summary of the findings and recommendations in plain language to the RAB and community members."

How to Apply? Con't.d

Key steps in the TAPP application process

Step 1.
RAB Member(s) and Community Co-chair

Determine the need
- Determine if TAPP assistance is the right solution for your community after considering alternate sources

Step 2.
RAB Members and Community Co-chair

Prepare the required documentation
- Obtain majority vote at RAB meeting and document results through the meeting minutes or email
- Notify the Installation Co-chair of your intent to pursue TAPP

Step 3.
RAB Member(s), Community Co-chair, and Installation Co-chair

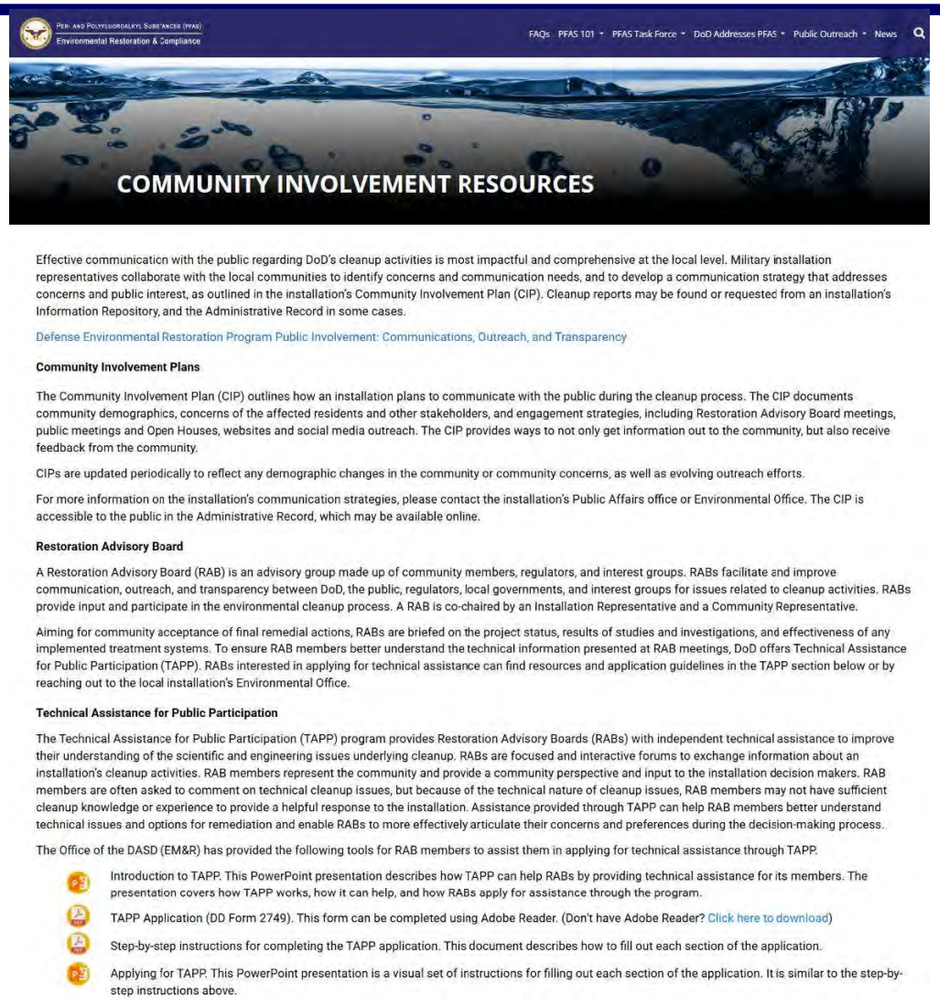
Fill out DD Form 2749
- Use the Step-by-Step written instructions or the more visual PowerPoint presentation for assistance in filling out the form
- Complete Sections I and II, send to the Installation Co-chair (with the majority vote attached) to coordinate approval from the Installation Commander
- After the form is approved, the Installation Co-chair will coordinate Section IV completion with the Community Co-chair and RAB members, and send to the Installation Commander for submittal to the Contracting Office

Step 4.
Contracting officer

Approval and receiving support
- Installation Contracting Office approves and begins the process to obtain services

Where to Apply?

- **TAPP Info:**
  - **DD Form 2749 filed on OSD website (Adobe Reader compatible)**
    - **Email to Installation Co-chair for Commander approval**
  - **https://www.acq.osd.mil/eie/eer/ecc/pfas/po/cir.html**



QUESTIONS?

Joint Base McGuire-Dix-Lakehurst
Engineering Evaluation and Cost Analysis (EE/CA) for Treatment of PFAS-Impacted Water in Manchester Municipal Supply Well #4

Mr. Robert Bird
Project Manager, HAAST

Introduction

- **U.S. Air Force (USAF) intends on conducting a NTCRA to address historical PFAS releases by USAF that have been detected in Manchester Township Municipal Drinking Water Supply Well #4**

- **The NTCRA will provide a permanent solution to protect human health from exposure to PFAS in drinking water from Well #4**

  - **The USAF has been implementing a separate temporary response since 2023 and will continue to implement the response for Well #4 until the permanent solution is implemented**

- **To support the NTCRA, an EE/CA was prepared to identify and evaluate removal action alternatives**

- **This presentation provides an overview of the EE/CA and recommended removal action alternative for the NTCRA at Well #4**

▪EE/CA – Engineering Evaluation/Cost Analysis
▪NTCRA - non-time-critical removal action
▪PFAS - per- and polyfluoroalkyl substances

Introduction

- **Contract (awarded): 29 September 2022 – 27 September 2027**
  - **US Army Corps of Engineers, Omaha District**
  - **Contract # W9128F21D0047, Delivery Order # W9128F220290**
  - **HGL-APTIM Applied Science and Technology (HAAST)**
  - **Objective:**
    - The EE/CA was prepared in accordance with the guidance on Conducting NTCRA under the CERCLA to identify and evaluate removal action alternatives for protecting human health from exposure to PFAS in drinking water at Well #4

▪CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
▪EE/CA – Engineering Evaluation/Cost Analysis

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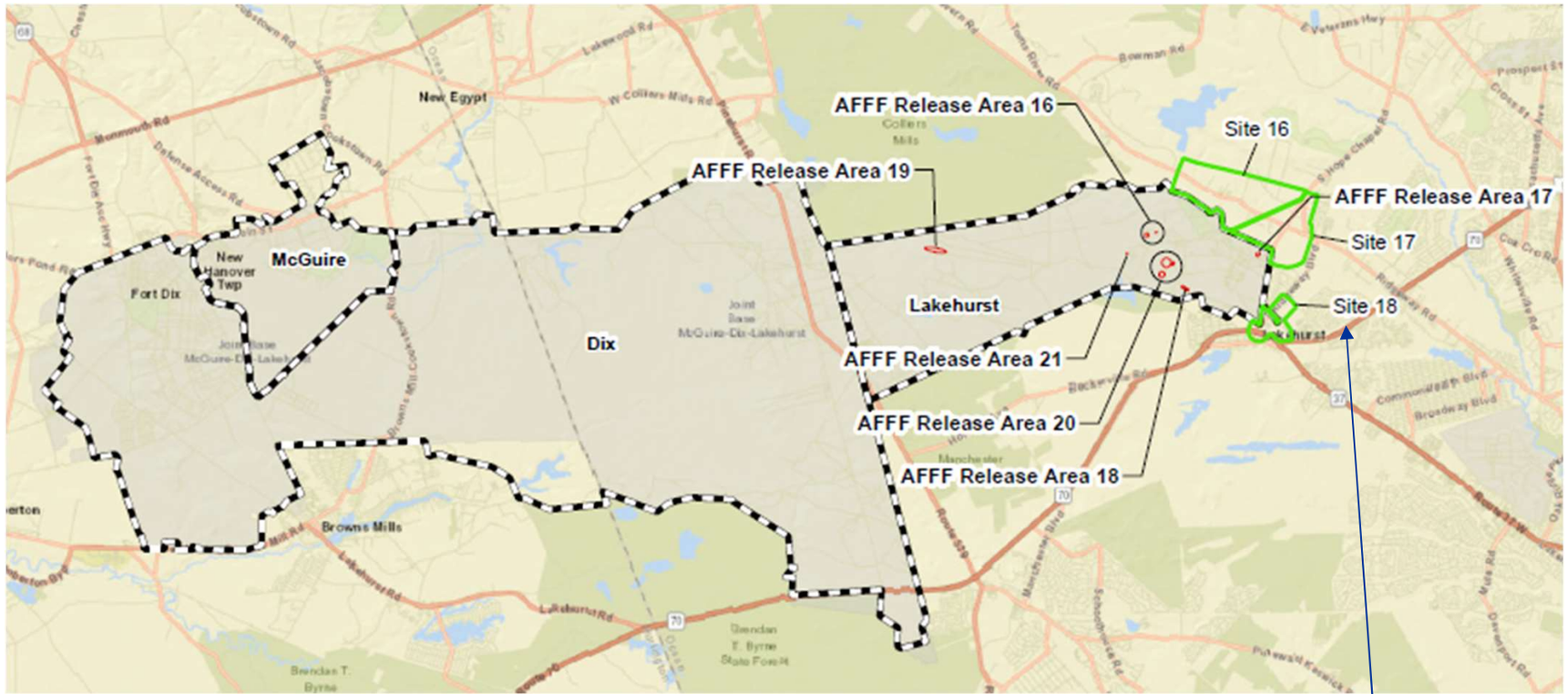
▪NTCRA - non-time-critical removal action
▪PFAS - per- and polyfluoroalkyl substances

Off-base Focus Areas of Drinking Water Investigations



Legend

- AFFF Off-Site Area
- SI AFFF Area
- JBMDL Installation Boundary

Notes:
AFFF=aqueous film-forming foam
EE/CA=Engineering Evaluation and Cost Analysis
JBMDL=Joint Base McGuire-Dix-Lakehurst
NTCRA=non-time critical removal action
PFOS=perfluorooctane sulfonic acid
PFOA=perfluorooctanoic acid
SI=Site Investigation

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Background

- 2016: Joint Base McGuire-Dix-Lakehurst (JB MDL) completed a site inspection for PFAS, including 8 aqueous film-forming foam (AFFF) release areas in Lakehurst
  - AFFF Release Area 18 (0.25 miles west of JB MDL-Lakehurst boundary)
  - Maximum total PFOA/PFOS concentration: 18,100 ng/L
  - Shallow groundwater flows to the east/southeast
- Dec 2016 to Sept 2022: JB MDL initiated off-base drinking water investigations and response, where applicable, at private drinking water well in JB MDL-Lakehurst: AFFF Sites 16, 17, and 18
- Dec 2020: Manchester Township first detected PFAS in Supply Well #4 in response to NJDEP drinking water requirements for public water systems
- March 2023: PFOS detected above NJDEP MCLs for first time
  - PFAS solely attributed to AFFF Area 18 historical release(s)
  - Supply Well #4 is approximately 1-mile downgradient of AFFF Release Area 18 and screened within the shallow surficial aquifer

Background (Continued)

- May 2023: US Air Force (USAF) agreed to provide wellhead treatment for Well #4 [1]
- June 2023: USAF signed a Time-Critical Removal Action (TCRA) Memorandum to implement temporary PFAS mitigation via wellhead treatment through an Environmental Services Agreement (ESA) with Manchester
  - Protects exposure to human health
  - Treats PFAS levels to less than NJDEP MCLs and EPA MCLs (June 2024)
- June 2024: EPA promulgated MCLs for 5 PFAS
- July 2024: ESA was amended to change treatment from IX to granular activated carbon (GAC)

1. Assistant Secretary of Defense; *Department of Defense Guidance on Using State Per- and Polyfluoroalkyl Substances Drinking Water Standards in Comprehensive Environmental Response, Compensation, and Liability Act Removal Actions;* 22 Dec 2021

▪EPA – U.S. Environmental Protection Agency
▪MCL – maximum contaminant level
▪NJDEP - New Jersey Department of Environmental Protection
▪PFAS - per- and polyfluoroalkyl substances

PFAS Concentrations at Well #4

- PFAS have been detected in Well #4 effluent since 2020
- Since the installation of the temporary ion exchange and granular activated carbon systems in 2023 and 2024, respectively, all PFAS concentrations have been non-detect in the effluent samples
- Highlighted results represent influent sample collected in 2024

Drinking Water Wells	Parameter / Sample Date	PFOS (ng/L)	PFOA (ng/L)	PFNA (ng/L)	HPFO-DA (ng/l)	PFHxS (ng/l)	Hazard Index
	EPA MCLs	4	4	10	10	10	1
	NJMCLs	13	14	13	NA	NA	NA
Well #4	12/7/2020	**8.1**	3.9	<2	NA	NA	NA
	3/4/2021	<2	<2	<2	NA	NA	NA
	6/2/2021	<2	<2	<2	NA	NA	NA
	9/30/2021	**11**	**9.3**	<2	NA	NA	NA
	12/7/2021	**10**	**10**	<2	NA	NA	NA
	3/17/2022	**11**	**10**	<2	NA	NA	NA
	6/2/2022	**12**	**11**	<2	NA	NA	NA
	9/1/2022	<2	<2	<2	NA	NA	NA
	10/20/2022	**13**	**9.8**	<2	NA	NA	NA
	3/14/2023	***16***	**11**	<2	NA	NA	NA
	6/29/2023*	<2	<2	<2	NA	NA	NA
	7/26/2023*	<2	<2	<2	NA	NA	NA
	9/12/2023*	<2	<2	<2	NA	NA	NA
	10/4/2023*	<2	<2	<2	NA	NA	NA
	6/18/2024*	<0.919	<0.919	<0.919	NA	NA	NA
	8/27/2024*	<1.84	<1.84	<1.84	NA	NA	NA
	9/24/2024*	<1.84	<1.84	<1.84	NA	NA	NA
	10/17/2024	**8.22**	**10.1**	<1.79	<1.79	**10.6**	**1.18**
	10/17/2024*	<1.76	<1.76	<1.76	NA	NA	NA

Bold = result exceeds the EPA MCL
HPFO-DA = hexafluoropropylene oxide dimer acid
Hazard Index = Estimated for a mixture of at least two or more of PFHxS, PFNA, HFPO-DA, and perfluorobutanesulfonic acid to account for the combined and cooccurring levels of these PFAS in drinking water
Italics = result exceeds the NJMCL
NA = not available
ng/L= nanograms per liter analogous to parts per trillion
PFOA = perfluorooctanoic acid
PFOS = perfluorooctane sulfonate (also known as perfluorooctanesulfonic acid)
PFNA = perfluorononanoic acid
PFHxS = perfluorohexane sulfonic acid
* Effluent sample collected post-treatment of PFAS

▪PFAS - per- and polyfluoroalkyl substances

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EE/CA Statutory Framework

- This response action is authorized under CERCLA and National Contingency Plan as delegated by Presidential Executive Order 12580
  - Removal actions precedes a Record of Decision
  - PFOS levels in Well #4 exceed EPA MCL of 4 ng/L and New Jersey MCL of 13 ng/L
- U.S. Air Force (USAF) has determined that an imminent and substantial threat to human health exists
- USAF is completing a NTCRA to implement a permanent solution for Well #4
  - A NTCRA is completed when the planning period exceeds 6-months before implementation
  - The EE/CA is the first step of the NTCRA and is used to evaluate removal action alternatives

▪CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
▪EE/CA – Engineering Evaluation/Cost Analysis
▪EPA - U.S. Environmental Protection Agency
▪MCL - Maximum Contaminant Level

▪NTCRA - non-time-critical removal action
▪PFAS - per- and polyfluoroalkyl substances
▪PFOS - perfluorooctane sulfonate

Statutory Framework

- Section 300.415(b)(4)(i) of the National Contingency Plan (NCP) requires a 30-day public comment period on the EE/CA to solicit public input on the cleanup process
- The scope of this removal action is to reduce exposure to per- and polyfluoroalkyl substances in drinking water at concentrations greater than EPA MCLs MCLs and New Jersey MCLs at Manchester Municipal Supply Well #4
- Based on the NCP requirements and the newly established federal standards, the following Removal Action Objective (RAO) was developed:
  - **Eliminate human exposure via ingestion of drinking water contaminated with PFAS at concentrations above the EPA established MCLs for perfluorooctanoic acid (PFOA) = 4 ppt; perfluorooctane sulfonate (PFOS) = 4 ppt; perfluorohexane sulfonic acid (PFHxS) = 10 ppt; hexafluoropropylene oxide dimer acid (HFPO-DA) = 10 ppt; and perfluorononanoic acid (PFNA) = 10 ppt or a Hazard Index of 1 for a mixture of at least two or more of PFHxS, PFNA, HFPO-DA, and perfluorobutanesulfonic acid. These concentrations are lower than those established by the state.**

- EE/CA – Engineering Evaluation/Cost Analysis
- EPA - U.S. Environmental Protection Agency
- MCL - Maximum Contaminant Level

Analysis of Removal Action Alternatives

- Removal action alternatives were developed to protect human health and achieve the Removal Action Objective (RAO) in a cost-effective manner
- Alternatives are evaluated based on effectiveness, implementability, and cost to achieve the RAO

Analysis of Removal Action Alternatives (continued)

- **Effectiveness** is its ability to meet the objective within the scope of the removal action and considers:
  - Long-term effectiveness and permanence
  - Reduction of toxicity, mobility, or volume through treatment
  - Short-term effectiveness
- **Implementability** considers the technical and administrative feasibility of an alternative, along with the availability of the necessary services and materials
- **Costs** (present worth estimate):
  - Direct capital
  - Indirect capital
  - Operation & maintenance costs

Removal Action Alternatives

- The three alternatives evaluated in the engineering evaluation and cost analysis (EE/CA) include:
  - Alternative 1 - No action taken to address per- and polyfluoroalkyl substances in Well #4 serves as a baseline for comparison
  - Alternative 2 – Ion Exchange (IX) Permanent System Installation
  - Alternative 3 - Granular Activated Carbon (GAC) Permanent System Installation

Alternative 2 – IX Permanent System Installation

- A permanent IX filtration system at treatment facility TP002009
  - Pre-fabricated structure to house treatment system
  - 6 vessels of IX resin (Purolite PFA694E): 60 cubic feet per vessel
  - 2 two skid-mounted pre-filters to remove sediment
  - Operates with redundant lead-lag configuration, conforming to NJAC 7:10-11
- Annual O&M
  - monthly influent and effluent performance sampling
  - periodic system maintenance
  - IX resin changeout (three vessels) every six years

▪IX – ion exchange
▪NJAC - New Jersey Administrative Code

Alternative 3 – GAC Permanent System Installation

- A permanent GAC filtration system at treatment facility TP002009
  - Pre-fabricated structure to house treatment system
  - 2 vessels of GAC: 10,000 pounds each
  - 2 two skid-mounted pre-filters to remove sediment
  - Operates with redundant lead-lag configuration, conforming to NJAC 7:10-11
  - Sewer connection to handle backwashing of effluent
- Annual O&M
  - monthly influent and effluent performance sampling
  - periodic system maintenance
  - GAC changeout (lead vessels) every 3 years

▪GAC – granular activated carbon
▪NJAC - New Jersey Administrative Code

Summary of Comparative Analysis of Removal Action Alternatives

CERCLA Evaluation Criteria	Remedial Alternatives		
	Alternative 1	Alternative 2	Alternative 3
	No Action	IX Permanent System Installation	GAC Permanent System Installation
Effectiveness			
Protective of Human Health and Environment	No	Yes	Yes
Complies with Applicable or Relevant and Appropriate Requirements	No	Yes	Yes
Effective and Permanent	No	Medium	Medium
Reduces Toxicity, Mobility, or Volume through Treatment	None (No Treatment)	Minimal (Incidental Treatment)	Minimal (Incidental Treatment)
Short-Term Effectiveness	Low	Medium	Medium
Implementable			
Technically Feasible	Yes	Yes	Yes
Administratively Feasible	No	Yes	Yes
Costs[1]			
Capital	$0	$1,080,000	$1,685,000
O&M (discounted)	$0	$2,879,000	$2,721,000
Present Worth (Capital + discounted O&M)	$0	$3,959,000	$4,406,000

- GAC – granular activated carbon
- IX – ion exchange
- O&M - Operation and Maintenance

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Recommend Removal Action Alternative

- U.S. Air Force (USAF) selected Alternative 2, Ion Exchange Permanent System Installation as the recommended Removal Action Alternative for TP002009
  - Satisfies the removal action objective (RAO) by eliminating PFAS exposure above the EPA MCLs and New Jersey MCLs
  - Readily implementable using readily available materials, supplies, and standard construction techniques
  - Offers longer capacity and effectively treats both short- and long-chain PFAS, outperforming the granular activated carbon option
- Overall, Alternative 2 provides the best combination of balancing attributes that ensures EPA MCLs compliance at the lowest costs to meet the RAO

▪EE/CA – Engineering Evaluation/Cost Analysis
▪EPA - U.S. Environmental Protection Agency
▪MCL - Maximum Contaminant Level

▪PFAS - per- and polyfluoroalkyl substances

Next Steps

- 30-day public comment period on EE/CA ends September 1, 2025
- U.S. Air Force will prepare and sign a Non-time-critical Removal Action Memo, selecting removal action alternative – TBD
- Develop a Removal Action Design for the permanent system, including updating required Water Allocation and Permit to Construct permits - TBD
- Construct permanent system once approved by New Jersey Department of Environmental Protection - TBD
- Continue implementing temporary system until permanent system is constructed and on-line – on-going

▪EE/CA – Engineering Evaluation/Cost Analysis
▪TBD – to be determined

QUESTIONS?

Joint Base McGuire-Dix-Lakehurst
PFAS Remedial Investigation – Lakehurst Area

Mr. Bob McGlade
Project Manager, Weston Solutions, Inc.

Phase I PFAS Remedial Investigation – Lakehurst Area

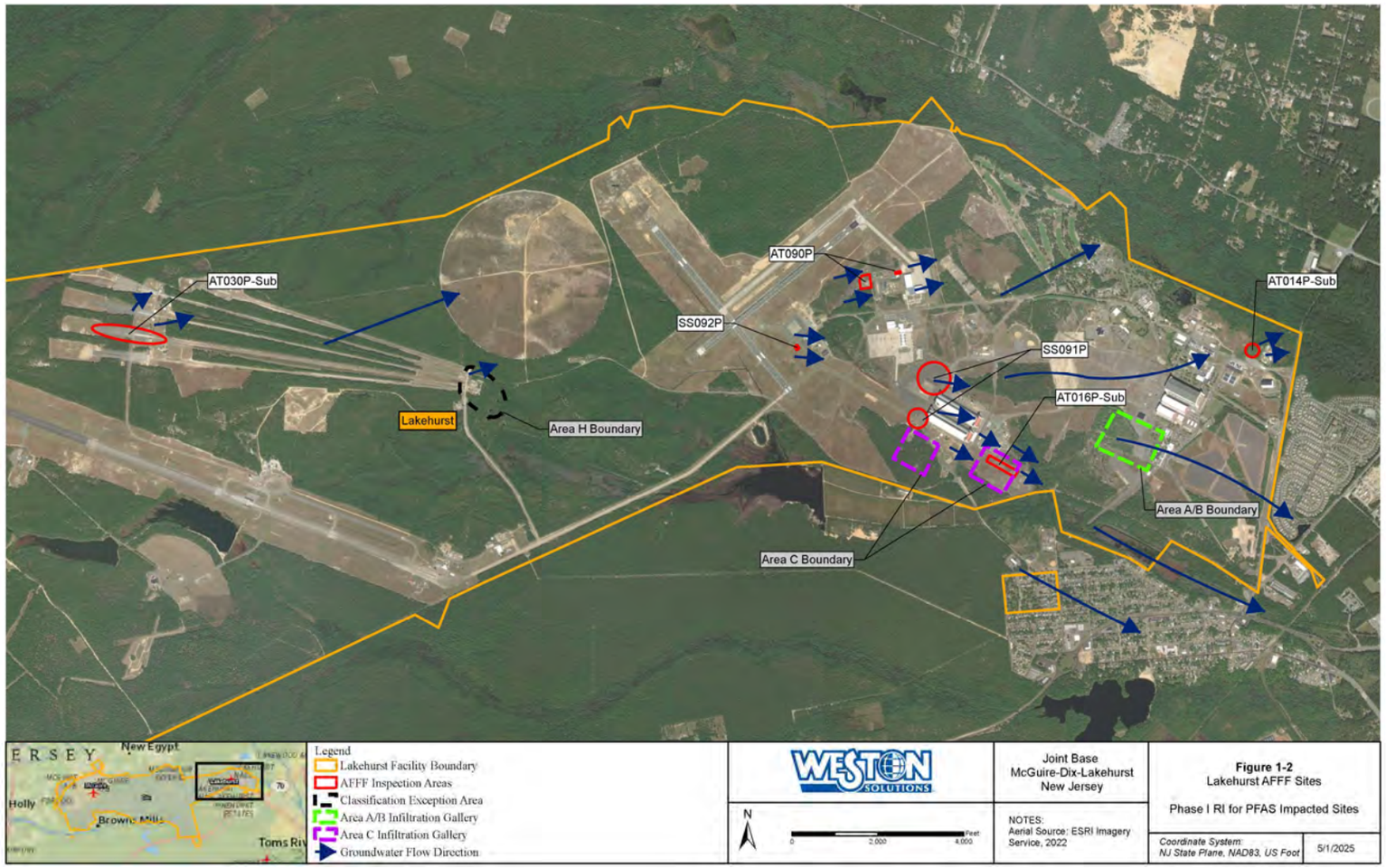
- U.S. Army Corps of Engineers Baltimore District Contract Number W912DR-19-D-0010, Task Order (TO) W912DR20F0427
- Work conducted under the Programmatic Work Plan (WP)/Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP) and the Addendum-3 Facility-Specific WP/UFP-QAPP for McGuire (Revision 1).
- Investigated 6 Validated Aqueous Film Forming Foam (AFFF) Sites
- Field Work began May of 2022 and completed in June 2025.

Objectives of the Remedial Investigation

- Nature and extent determination (lateral and vertical)
- Soil, groundwater, surface water, sediment, soil pore water
- Provide recommendations for future work

Risk Assessment was not included, but data collected will support Risk Assessment in the future

6 Validated Site Locations (Lakehurst)



Site ID	Site Name	SI AFFF Area
SS090P	AFFF Release at Historical Fire Training Area	Area 16
SS091P	AFFF Release at Helistat Crash and Plane Crash	Area 20
SS092P	AFFF Release at Fire Truck Crash Site	Area 21
AT014P-Sub	PF Sub Site NAWCAD (Old Firefighting School)	Area 17
AT016P-Sub	PF Sub Site NAWCAD (Former NAVAIR Training Technical Fire Training Area)	Area 18
AT030P-Sub	PF Sub Site NAWCAD (Navy Test Track 4)	Area 19

Note: During execution, several former groundwater treatment systems were incorporated into the RI.

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Phase I Remedial Investigation Activities

- 1 initial sampling event of 37 existing monitoring wells near source areas.
- Source area soil sampling and step-out sampling (179 locations; direct push technology [DPT] soil borings; surface and subsurface soil).
- Source area groundwater screening and step-out sampling (162 locations, DPT borings).
- Soil lithology logging.
- Installation of 24 source area lysimeters with 4 rounds of pore water sampling.
- Installation of 75 new monitoring wells with 2 rounds of sampling.
- Geophysical borehole logging of the deepest newly installed well at each site.

Phase I Remedial Investigation Activities (Cont'd)

- Surface water and sediment sampling at 45 locations, including up- and down-stream, to determine potential migration to the watershed(s).
  - Wet and dry condition sampling at each location
- Update of Conceptual Site Model (CSM) using stratigraphic and contaminant plume modeling
- Generating a three-dimensional (3D) model of the extent of PFAS contamination.

Overall Notes for This Presentation

- PFOS is presented for all sites to reduce the number of slides.
  - Generally, PFOS has the highest exceedances and encompasses areas associated with other PFAS compound exceedances, where they exist.
- Lysimeter pore water results are not presented.
  - Lysimeters were installed at each site and were co-located with the highest soil concentrations of PFAS
- Co-mingling of groundwater plumes is extensive in the central portion of Lakehurst.
- Groundwater plumes extend far off-post to the east (several miles) and may be influenced by external sites at distance.
- Far field surface water and sediment results may be influenced from external sites.
- Groundwater and soil exceedance contours are mathematical interpolations based upon analytical results.

Screening Levels (Revision 1)

Table 1-2
ASD PALs for Phase I PFAS RI: On-Base and Off-Base at JB MDL

ASD Screening Levels														
Chemical	Carcinogenic SF - Oral SF (mg/kg-day)	Non-Carcinogenic RfD (mg/kg-day)	EPA RSLs (May 2023)											
			Residential Tap Water (ng/L)				Residential Soil (mg/kg)				Industrial Soil (mg/kg)			
			HQ = 0.1	HQ = 1.0	ILCR = 1E-06	ILCR = 1E-04	HQ = 0.1	HQ = 1.0	ILCR = 1E-06	ILCR = 1E-04	HQ = 0.1	HQ = 1.0	ILCR = 1E-06	ILCR = 1E-04
PFOS	NA	2.00E-06	4	40	NA	NA	0.013	0.13	NA	NA	0.16	1.6	NA	NA
PFOA	7.00E-02	3.00E-06	6	60	1,100	111,000	0.019	0.19	7.8	780	0.25	2.5	33	3,300
PFBA	NA	1.00E-03	1,800	18,000	NA	NA	7.8	78	NA	NA	120	1,200	NA	NA
PFBS	NA	3.00E-04	600	6,000	NA	NA	1.9	19	NA	NA	25	250	NA	NA
PFNA	NA	3.00E-06	5.9	59	NA	NA	0.019	0.19	NA	NA	0.25	2.5	NA	NA
PFHxA	NA	5.00E-04	990	9,900	NA	NA	3.2	32	NA	NA	41	410	NA	NA
PFHxS	NA	2.00E-05	39	390	NA	NA	0.13	1.3	NA	NA	1.6	16	NA	NA
HFPO-DA	NA	3.00E-06	6	60	NA	NA	0.023	0.23	NA	NA	0.35	3.5	NA	NA

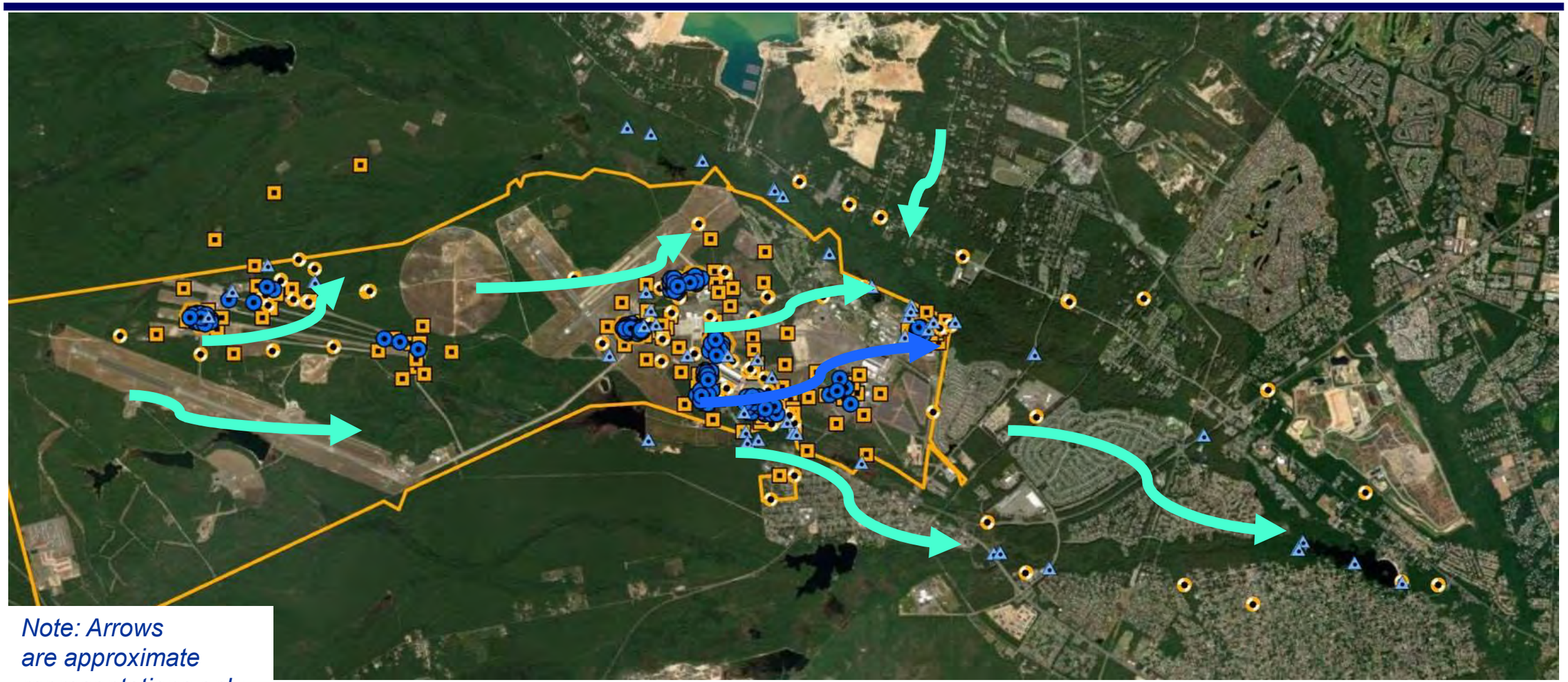
Notes:

1. Default exposure assumptions for each receptor scenario shown above are from EPA's RSL Calculator on May 2023. The RSLs may be found in EPA's RSL table or by using EPA's RSL Calculator (https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search).
2. Final peer-reviewed toxicity values considered valid for a CERCLA risk assessment and the screening levels may be found in EPA's RSL table or EPA's RSL Calculator. (The 2022 interim health advisories for PFOS and PFOA are based on draft toxicity values and are not used in CERCLA risk assessments.)
3. Other potential receptor scenarios (e.g., recreational user, site trespasser, construction worker) are not included in the above table but could be relevant receptors at a site potentially containing PFAS. These receptors, and their associated exposure scenarios, should be further considered in the scoping phase and completion of the Baseline Human Health Risk Assessment typically completed during an RI.
4. The shaded values represent conservative screening levels in groundwater or soil that, when exceeded, should be considered a contaminant of potential concern in the RI's risk assessment process.

Source: ASD Memorandum dated 24 August 2023 (ASD, 2023)

ASD – Office of the Assistant Secretary of Defense
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
EPA – U.S. Environmental Protection Agency
HQ – hazard quotient
ILCR – incremental lifetime cancer risk
mg/kg – milligram(s) per kilogram
mg/kg-day – milligram(s) per kilogram per day
NA – not applicable/available
ng/L – nanogram(s) per liter
PAL – project action limit
RfD – reference dose
RI – remedial investigation
RSL – Regional Screening Level
SF – slope factor

Sampling (Overall) and Groundwater Flow



Note: Arrows are approximate representations only.

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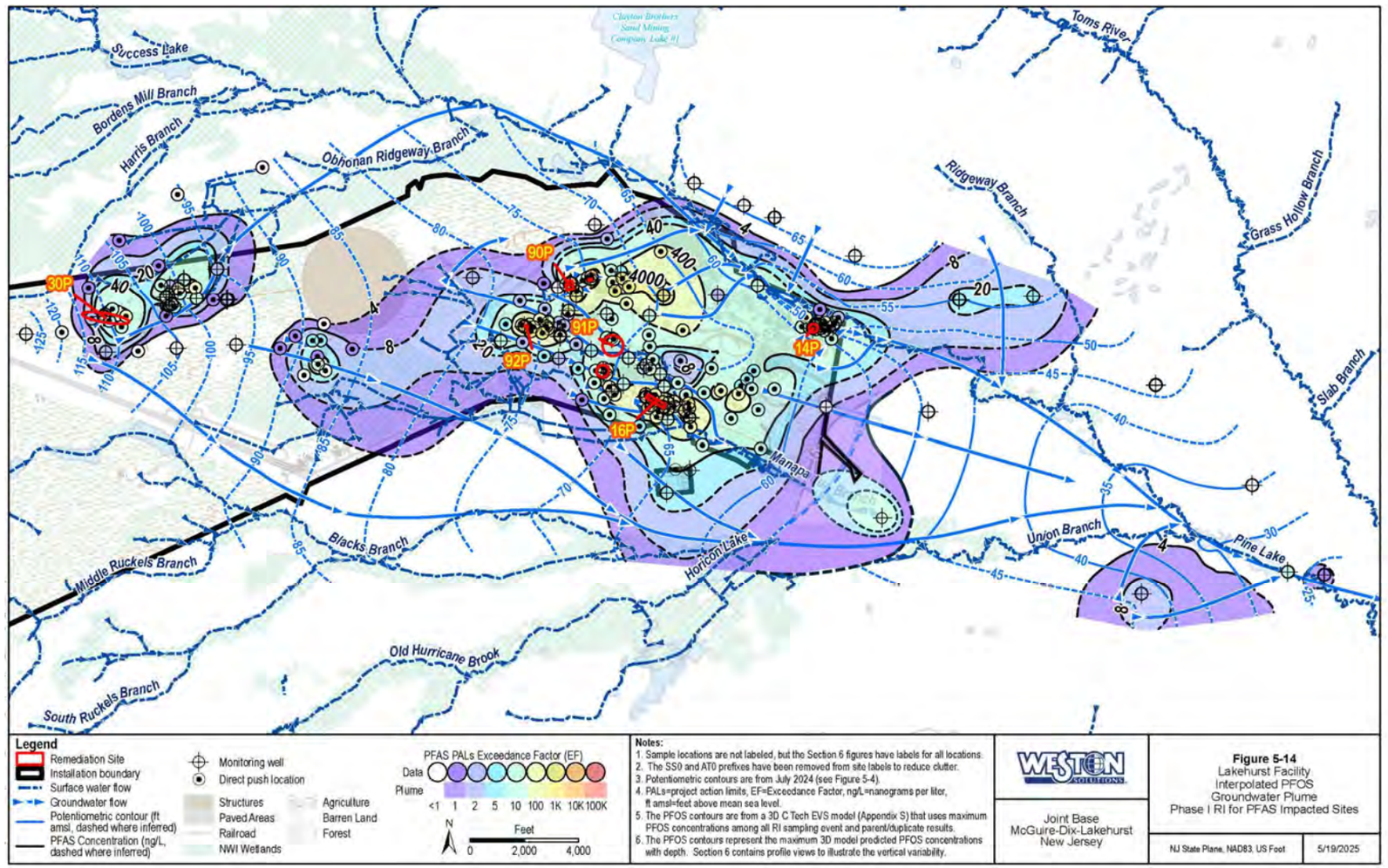
Groundwater Results (Overall, PFOS)



- Co-mingling is occurring in central portion
- Figure represents data collected through July 2024
- Additional remedial investigation sampling completed between July 2024 and June 2025 will be provided in Technical Memo
- Additional sampling is needed on-base and off-base to complete necessary data gap sampling
  - Nature and extent
  - Ecological receptors
  - Reduced screening levels

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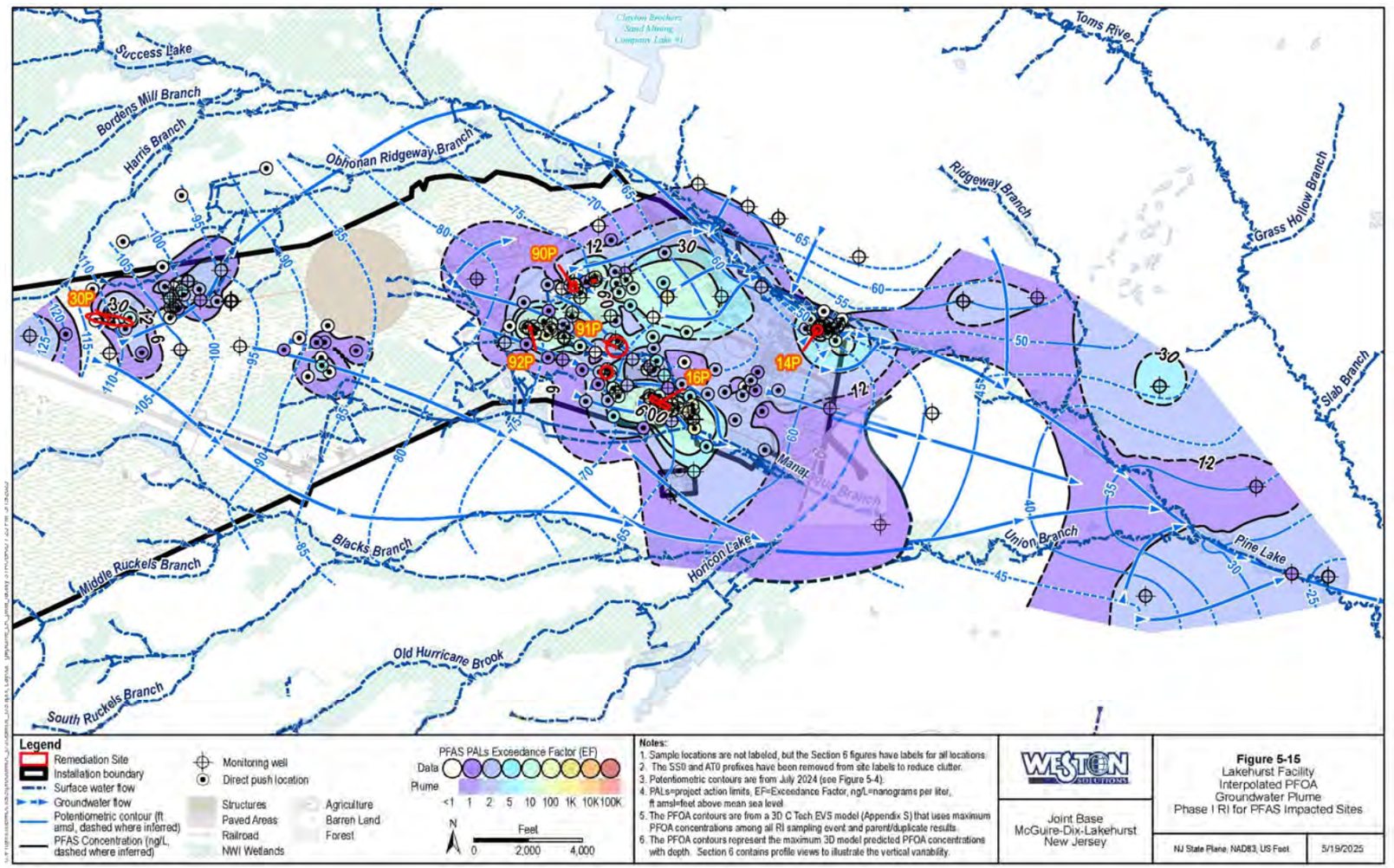
Groundwater Results (Overall, PFOA)



PFOA plume is more extensive at distance than PFOS.

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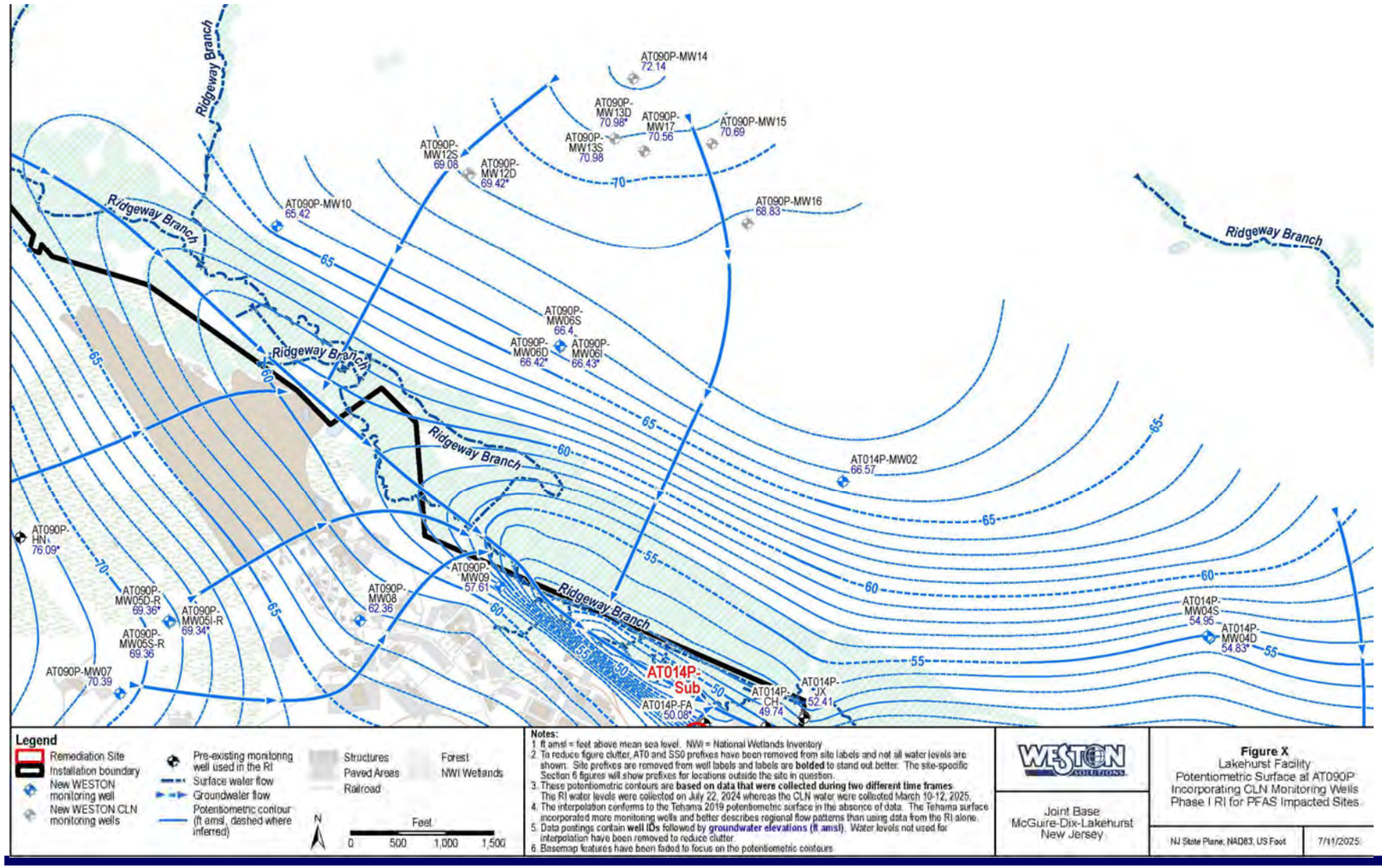
Data Gap Investigation Between July 2024 and June 2025



- Off-base monitoring wells installed, gauged, and sampled were completed between July 2024 and June 2025
- Groundwater flow north of Lakehurst was confirmed to flow south toward Lakehurst
- Concentrations indicate potential secondary PFAS sources not solely attributed from Air Force

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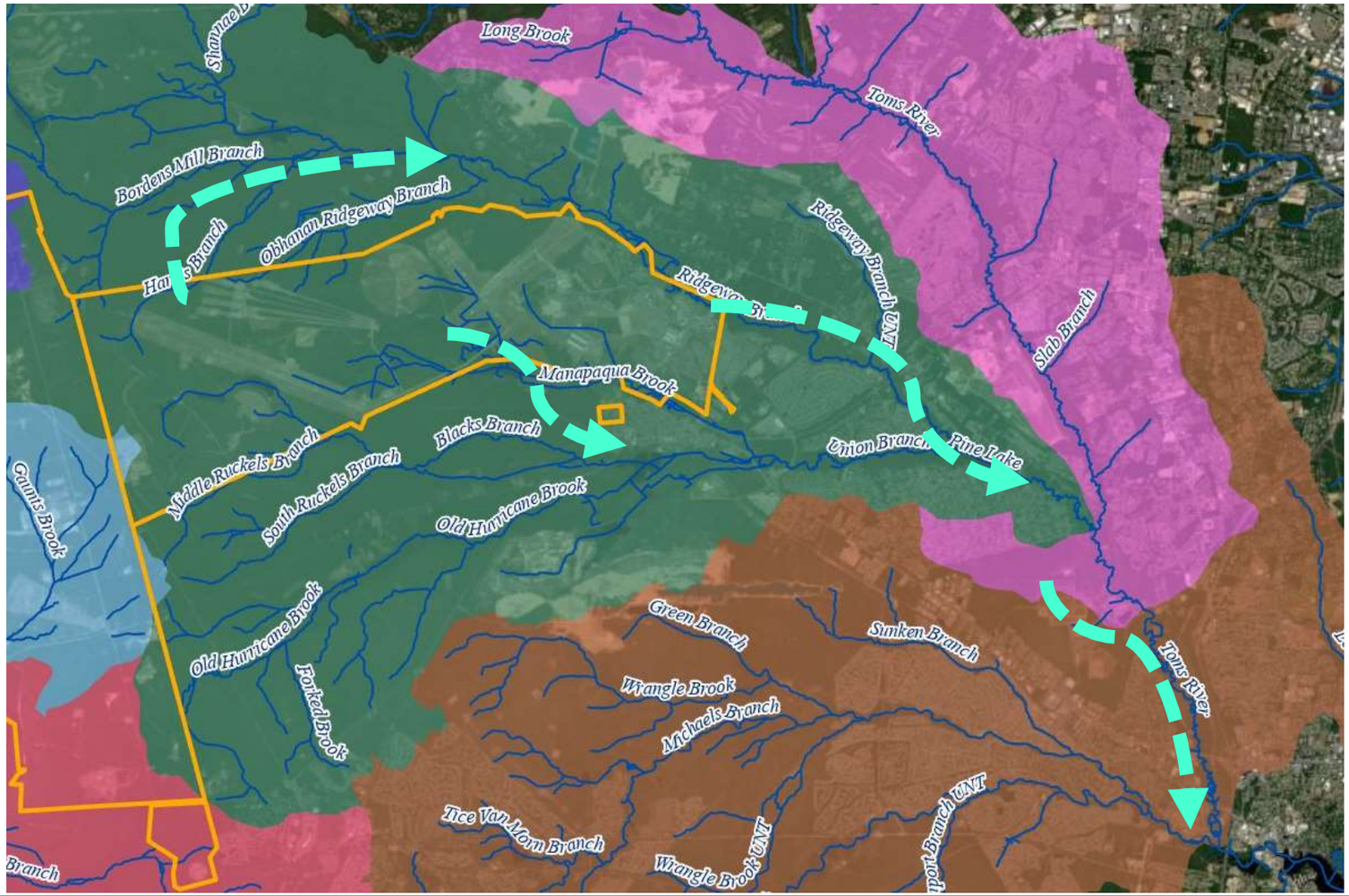
Surface Water Flow Direction (Sub-Basin)



- Co-mingling is occurring downstream
- All Lakehurst sites flow out to Toms River

Note: Arrows are approximate representations only.

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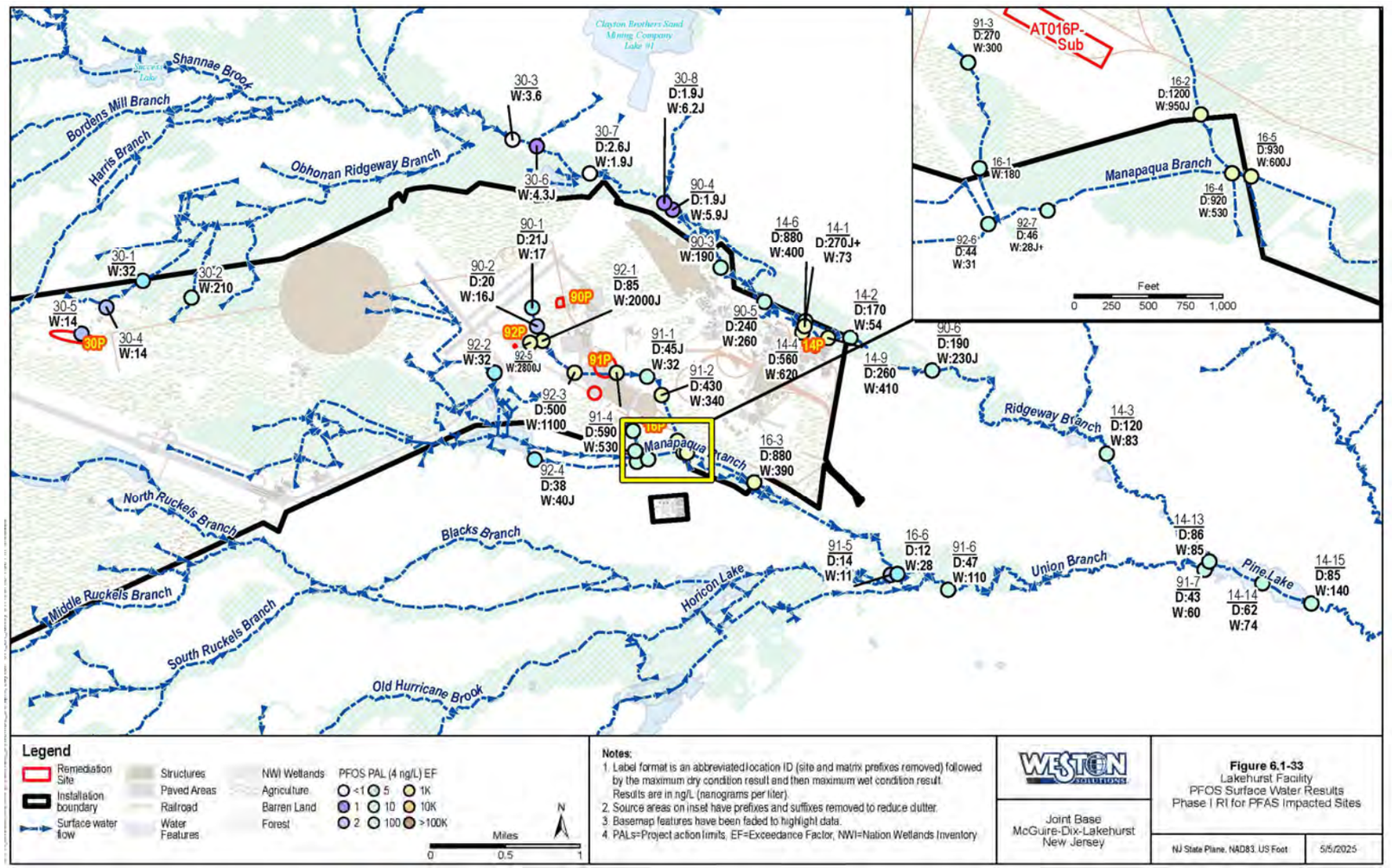
Surface Water and Sediment Sampling (Near, Including Outfalls)



- Co-mingling is occurring downstream
- Downstream exceedances are noted.
- Additional sampling has been conducted upstream and downstream.

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Challenges and Recent Activities

Challenges:

- Reductions in screening levels during execution complicated step out sampling and the evaluation of results.
- Extent of off-site groundwater plume.
- Extensive areas of impervious surface at some sites.

Recent Activities*:

- Additional well installation and sampling.
- Additional soil step out sampling.
- Additional surface water/sediment sampling.

** This additional work was conducted to address some data gaps identified in the RI Report.*

QUESTIONS?