



87th Air Base Wing



Joint Base McGuire-Dix-Lakehurst Restoration Advisory Board

02 Nov 2023

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Welcome and Introductions
Review of hybrid RAB meeting format

Mr. James Richman
Remediation Program Manager, AFCEC/CZOE

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25 May 2023 Restoration Advisory Board Action Items

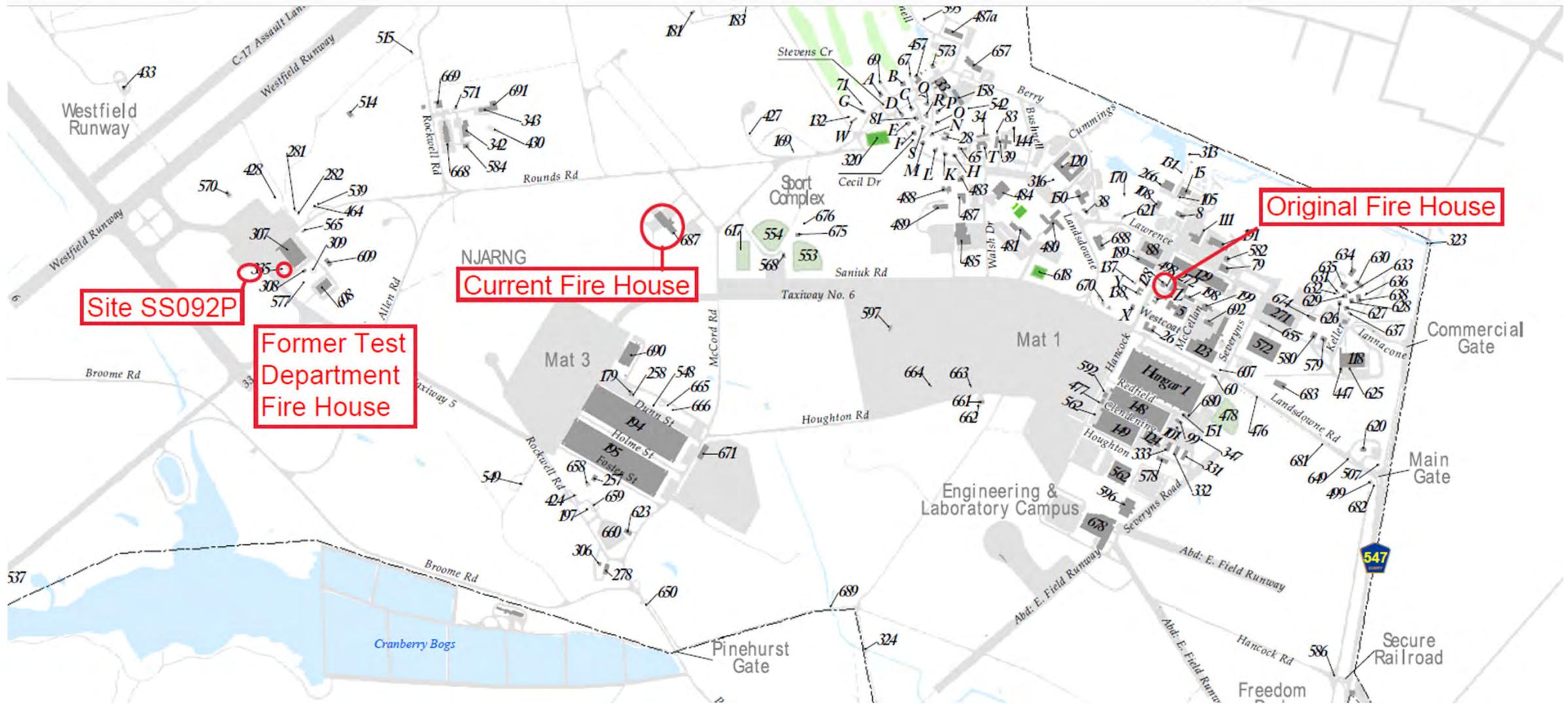


- **Mr. Tamn asked if the area around the Lakehurst fire station is being investigated.**
 - **Not investigating Current Fire House (MAIN) – no record of PFAS being released**
 - **Not investigating Original Fire House (near bldg. 5) no record of PFAS being released**
 - **Investigating the Fire Truck Crash site (SS092P) at former Test Department Fire House near Westfield Hangar**
 - **Identified an additional source area near SS092P that is not specifically associated the Fire Truck Crash**

- **Mr. Tamn requested a tour be done of the environmental sites soon while daylight still permits an evening tour.**
 - **Will consider in Spring/Summer 2024 when more day light is present**
 - **Performance Based Remediation (PBR) contract end Sept 2024**
 - **Optimized Remediation Contract to be awarded in 2024**



JB MDL Site SS092P and Fire House Locations





25 May 2023 Restoration Advisory Board Action Items



- Mr. Tamn referred to a question he asked at the last meeting regarding a grant that was given to the RAB in approximately 2002 for technical assistance from an independent consultant to review all the work performed at the BOMARC site. Mr. Tamn asked whether a similar grant could be obtained for an updated review.
 - A Technical Assistance Plan (TAP) enables community groups to retain the services of an independent technical advisor to help interpret and understand technical site information. The TAP can also provide resources for a community group to help other community members learn about site decisions. (EPA website)
 - TAP would be used for active sites
 - The plutonium contamination associated with the BOMARC Missile fire (Site RW001) has been cleaned up and the site is closed (i.e. no further action) – TAP not authorized
 - Contamination remaining at BOMARC are the trichloroethylene (TCE) plumes
 - Remedy phase: remedial action-operations (RA-O)
 - Remedy: Air sparge, long-term management of groundwater and surface water, and land use controls
 - TAP must be initiated by Community Group, not the Air Force

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25 May 2023 Restoration Advisory Board Action Items



QUESTIONS?



PLANNED PRESENTATION TOPICS



- **General PFAS update – Air Force**
 - Background
 - JB MDL Response Actions (i.e. mitigation)
 - Remedial Investigation
 - Off-base Drinking Water Focus Area Investigations (2016 – 2022)
 - Off-base Drinking Water Focus Area Investigations (2023 - current)
 - Off-base Monitoring Well and Surface Water Sampling
- **Contracting Update – Air Force**
 - Optimized Remediation Contract (ORC)
 - Expected PBR Endpoints
 - ORC Starting points
 - **Sitewide Biennial Well Survey ***
- **Performance Based Remediation (PBR) Contract – Air Force**
 - **Response Complete (RC)/Site Closure (SC) Update ***

•OU – Operable Unit

* Topic Presented Time Permitting

•PFAS – Per- and polyfluoroalkyl substances

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Joint Base McGuire-Dix-Lakehurst General Per- and Polyfluoroalkyl Substance (PFAS) Update

**Mr. James Richman
Remediation Program Manager, AFCEC/CZOE**

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PFAS Background



- Per- and polyfluorinated alkyl substances (PFAS) are a large class of chemicals that contain chained fluorinate carbons
 - More than >2,000 PFAS chemicals
 - Carbon-fluorine bond is the strongest covalent bond in organic chemistry
 - Do not degrade – resistant to natural degradation
 - Heat resistant - extremely high melting point
 - Do not like water - hydrophobic
 - Do not like oil/fats – oleophobic/lipophobic
- PFOS/PFOA are the most widely studied PFAS
- PFOS/PFOA historically used in AFFF and many other industrial and consumer products
- PFOS/PFOA are Emerging Contaminants with evolving regulations
- Air Force is investigating PFAS under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authority





Drinking Water Regulations / Health Advisories for PFAS



- Evolving regulations – no promulgated federal standard
- May 2016 - USEPA lifetime health advisory (HA) guidance levels ← DoD policy for action in drinking water
 - **Rescinded by EPA August 2023**
 - PFOS/PFOA - 70 parts per trillion (ppt), Individually or combined
 - Non-enforceable/non-regulatory
- NJDEP promulgated Maximum Contaminant Level (MCL) under SDWA
 - 04 Sept 2018: PFNA 13 ppt
 - 01 June 2020: PFOS 13 ppt, PFOA 14 ppt
 - Air Force is investigating PFOS/PFOA under CERCLA (aka Federal Superfund Cleanup)
 - OSD Memo (12 Jan 2021) – NJDEP MCLs are potential ARARs (evaluated after determination of unacceptable risk)
 - OSD Memo (22 Dec 2021) – Guidance on Using State PFAS Drinking Water Standards in CERCLA Removal Action ¹
- 15 June 2022 - USEPA issued interim updated and new lifetime HA guidance levels
 - Updates: PFOS – 0.02 ppt; PFOA – 0.004 ppt
 - New final: GenX Chemicals – 10 ppt; PFBS – 2,000 ppt
 - Non-enforceable/non-regulatory
 - OSD has not authorized any action under the interim updated and new lifetime HAs
- 15 Mar 2023 – USEPA proposed Draft MCLs for PFAS
 - PFOS & PFOA = 4 ppt
 - PFBS, PFNA, PFHxS, Genx = 1.0 Hazard Index
 - OSD has not authorized any action under the Draft MCLs

- ARARs – Applicable or Relevant and Appropriate Requirements
- CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
- DoD – Department of Defense
- NJDEP – New Jersey Department of Environmental Protection
- OSD – Office of Secretary of Defense
- SDWA – Safe Drinking Water Act
- USEPA – US Environmental Protection Agency
- PFAS – Per- and polyfluoroalkyl substances
- PFOS - Perfluorooctane Sulfonate
- PFOA - Perfluorooctanoic Acid
- PFBS - Perfluorobutane sulfonic acid
- PFHxS - Perfluorohexane sulfonate
- PFNA - Perfluorononanoic acid
- GenX - hexafluoropropylene oxide (HFPO) dimer acid

1 – Response Action can be implemented for drinking water well exceedance of NJDEP MCLs, if: 1) Air Force is the source of the contamination; 2) an upgradient drinking water well exceeds 70 ppt of PFOS/PFOA; 3) wells must be hydraulically connected to the source; 4) must exceed 70 ppt for PFOS/PFOA in the future

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Air Force



- Air Force is taking proactive steps to address PFOS/PFOA associated with mission-related AFFF releases
- Goal is to protect human health and ensure access to safe drinking water for installation and surrounding communities
- Comprehensive approach – identify, respond, prevent – to assess the potential for PFOS/PFOA in drinking water, on and off the installation, and respond appropriately
- Air Force is investigating PFOS/PFOA under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980
 - PFAS is not a federal hazardous substance
 - Immediate response/mitigation to impacted drinking water receptors above the EPA Lifetime Health Advisory
- Defense Environmental Restoration Program (DERP) eligible
 - Closed, validated sites



PFOS/PFOA Mitigations



Temporary Ion Exchange Treatment System



Water Main Construction & Connections

On-base

- Air Force sampled all on-base public drinking water systems (PWS) – 2016
- All of JB MDL’s primary operating drinking water sources are non-detect for PFOS/PFOA/PFNA
- All Lakehurst drinking water non-detect for PFOS/PFOA/PFNA except:
 - 2 back-up supply wells exceeded 70 ppt for PFOS/PFOA in 2016 and were taken offline
 - mitigated Apr 2019 using ion exchange as temporary short-term solution
- New Back-up Water System
 - Construction of new, deep, confined water supply well – 100% complete
 - Treatment building for new water supply well - 100% complete
 - Permit to Operate effective 01 Apr 2023
 - Decommission the 2 back-up supply wells impacted by PFAS – 100% complete



Drilling Potable Well



New Back-up PWS

Off-base Impacted Properties

- Immediate: provided bottled water > 70 ppt for PFOS/PFOA
- Short-term solution: POET or POUT filtration systems
- Long-term, permanent solution: connected to municipal water – Sept 2022
- Manchester Municipal Supply Well #4 Mitigation – June 2023
 - PFOS exceeded maximum contaminant level of 13 ppt
 - OSD Memo (22 Dec 2021) – Guidance on Using State PFAS Drinking Water Standards in CERCLA Removal Action



•PFAS – Per- and polyfluoroalkyl substances
 •PFOS - Perfluorooctane Sulfonate

•PFOA - Perfluorooctanoic Acid
 •PFNA - Perfluoronanoic acid

•ppt – part per trillion

•POET – point of entry treatment
 •POUT – point of use treatment

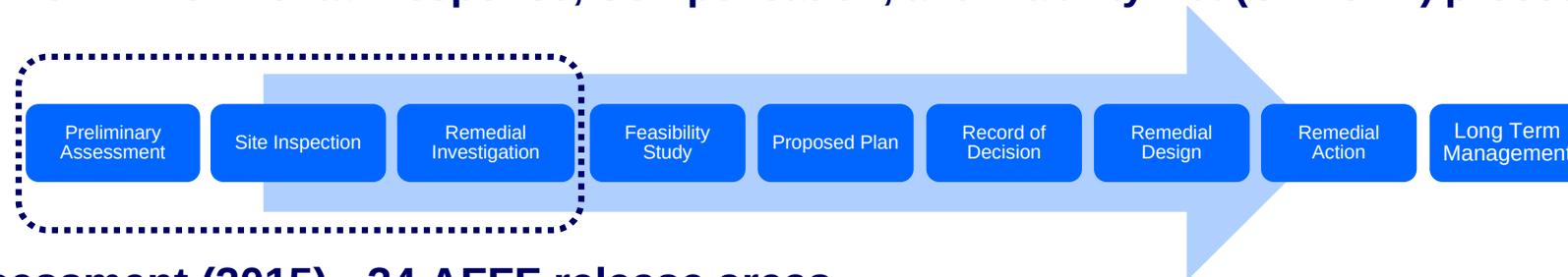
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JB MDL PFAS Investigations



Follow Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process



■ Preliminary Assessment (2015) - 34 AFFF release areas

- Record search & interviews with base personnel with site knowledge – identify potential source areas
 - 10 fire training areas
 - 10 hangars/buildings
 - 7 emergency response sites
 - 7 waste management areas

■ Site Inspection (2016-2019) – 21 consolidated sites

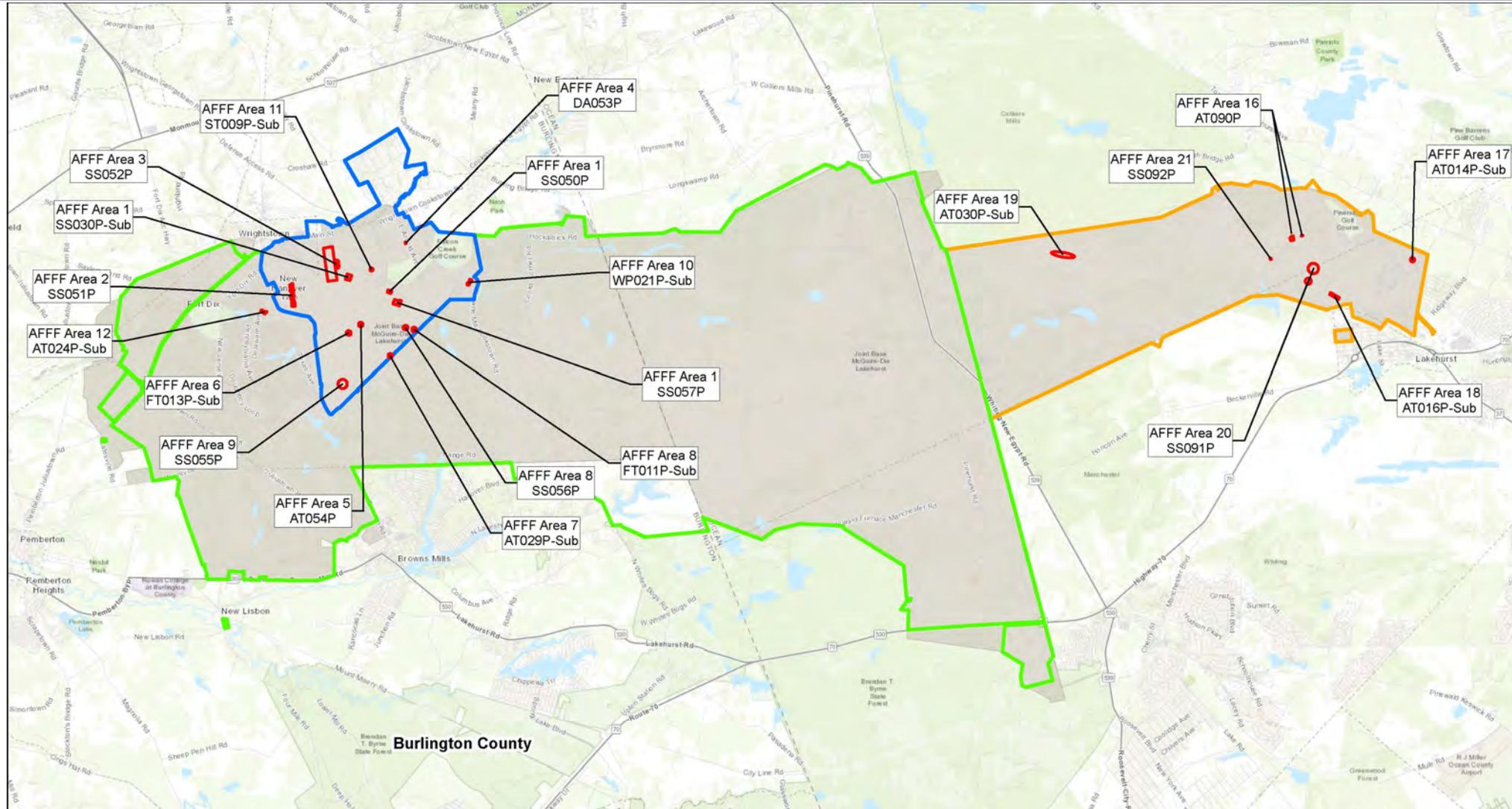
- Determine presence/absence of contamination identified in Preliminary Assessment
- Evaluate potential pathways to receptors
 - 11 AFFF Areas McGuire
 - 4 AFFF Areas Dix
 - 6 AFFF Areas Lakehurst

■ Remedial Investigation (2020-2025) - **on-going**

- Delineate nature and extent of PFAS in soil, groundwater (GW), surface water (SW), and sediment on- and off-base



JB MDL PFAS Sites

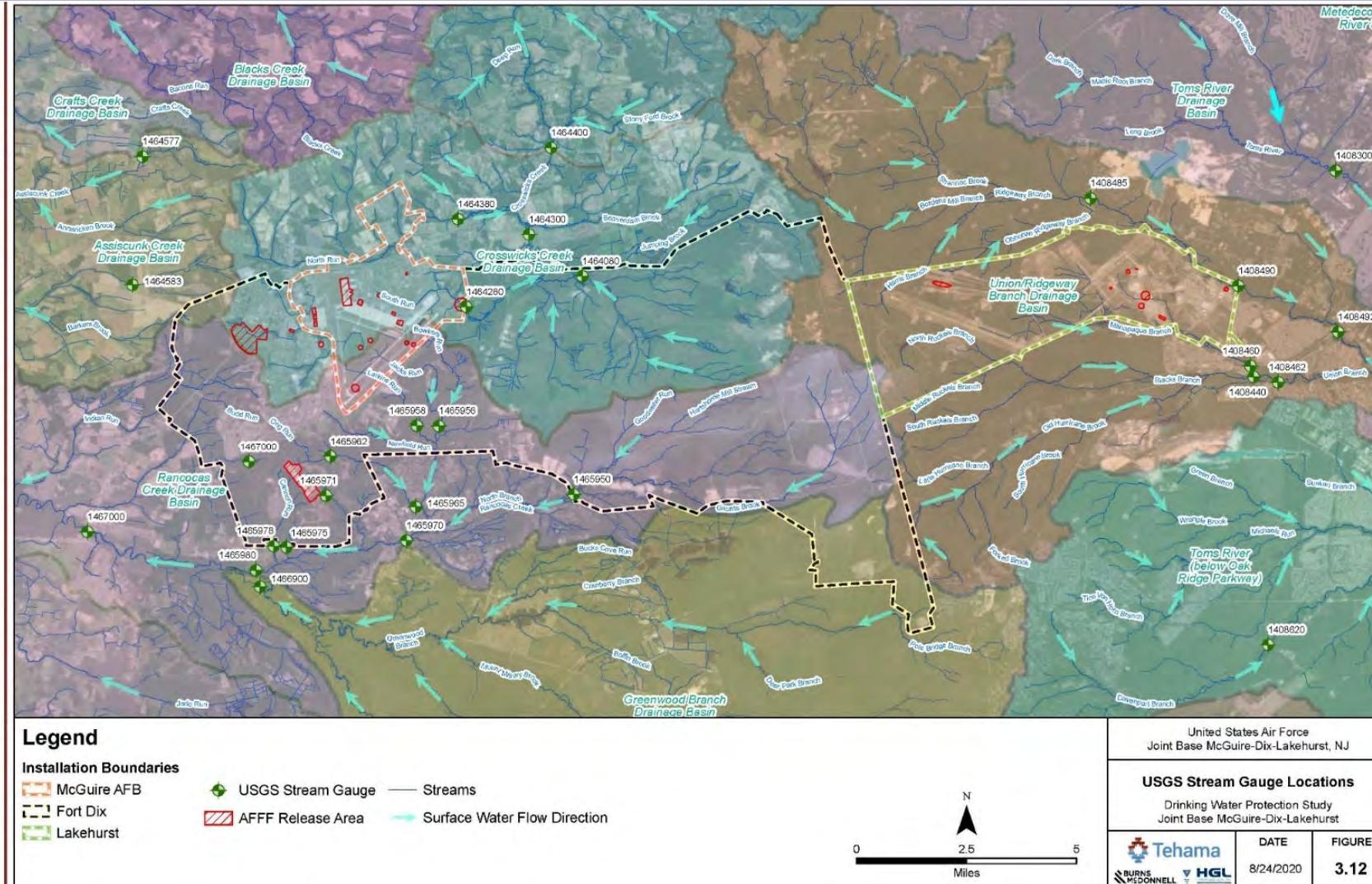


PFAS – Per- and polyfluoroalkyl substances

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Surface Water Flow & Watersheds Off-Base Evaluation for Potential Impacts



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McGuire Remedial Investigation Sites



MCGUIRE PFAS SITES

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Site ID (IRP bold)	Site Name	SI AFFF Area
SS050P	AFFF Release at Old Fire Station (Bldg 1708)	Area 1
SS051P	AFFF Release at 3300 Area Hangars	Area 2
SS052P	AFFF Release at Romeo Row and Hangars 3210, 3211	Area 3
DA053P	AFFF Release at Old Fire Station 2502	Area 4
AT054P	AFFF Release at Active Fire Training Area 1613	Area 5
SS055P	AFFF Release at 1980 Plane Crash Site	Area 9
SS056P	AFFF Release at 1983 Plane Crash Site	Area 8
SS057P	AFFF Release at Hangar 1837	Area 1
ST009P-Sub	Bulk Fuel Storage Area	Area 11
FT011P-Sub	Fire Protection Training Area 2	Area 8
FT013P-Sub	Fire Protection Training Area 3	Area 6
WPO21P-Sub	WWTP Sludge Disposal Area	Area 10
AT029P-Sub	Suspected Fire Training Area 5	Area 7
SS030P-Sub	AFFF Release Site SS-30 South of B2251, B2253	Area 1
Main Ramp and 2 WWTP not validated sites		Areas 1 and 10

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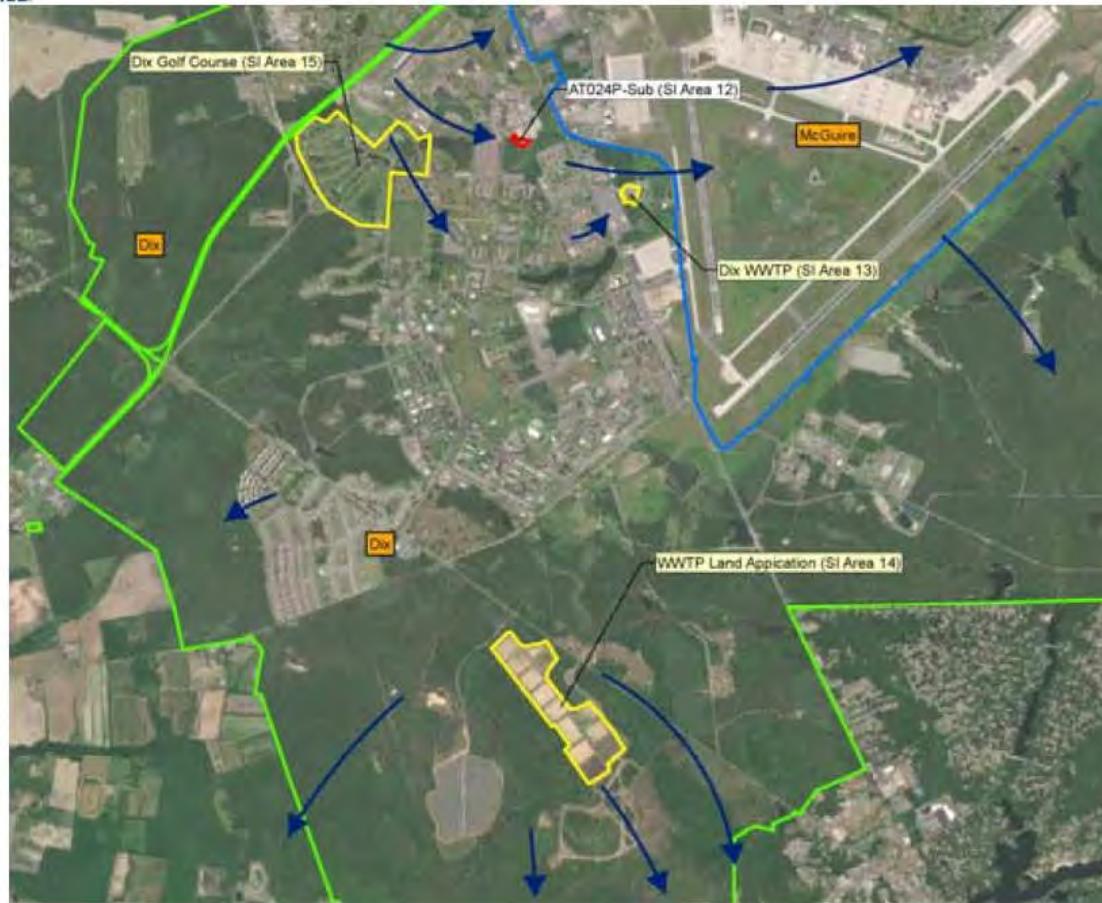


Dix Remedial Investigation Sites



FORT DIX PFAS SITES

U.S. AIR FORCE



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Site ID (IRP bold)	Site Name	SI AFFF Area
AT024P-Sub	PF Sub Site Former Fire Training Area	Area 12
Golf Course, WWTP and WWTP Land Appl. area not validated sites		Areas 13, 14 and 15

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McGuire/Dix RI Sample Summary (October 2023)



Installation	Site	DPT-GW		DPT-Soil		Existing Wells	New Wells		Lysimeters		SW/SED	
		<i>Locations</i>	<i>Samples</i>	<i>Locations</i>	<i>Samples</i>	<i>Samples</i>	<i>Installed</i>	<i>Samples</i>	<i>Installed</i>	<i>Samples</i>	<i>Locations</i>	<i>Samples</i>
Dix	AT024P-Sub	27	81	28	84	4	10	0	3	3	4	4
McGuire	AT029P-Sub	21	63	15	50	4	6	0	3	3	4	4
McGuire	AT054P	19	57	22	66	4	11	0	3	3	3	3
McGuire	DA053P	17	51	16	48	0	0	0	3	3	3	3
McGuire	FT011P-Sub	10	30	31	97	6	3	0	3	3	4	4
McGuire	FT013P-Sub	13	39	30	90	7	7	0	3	3	3	3
McGuire	SS030P-Sub	9	27	14	42	11	8	0	3	3	3	3
McGuire	SS050P	17	51	22	66	12	11	0	3	2	3	3
McGuire	SS051P	17	51	28	84	3	12	0	3	3	4	4
McGuire	SS052P	15	45	28	84	17	6	0	3	3	3	3
McGuire	SS055P	15	45	15	45	0	6	0	3	3	4	4
McGuire	SS056P	5	15	14	42	0	2	0	3	3	3	3
McGuire	SS057P	14	42	17	51	9	6	0	3	2	3	3
McGuire	ST009P-Sub	13	39	20	60	14	0	0	3	3	3	3
McGuire	WPO21P-Sub	14	42	14	42	15	0	0	3	3	3	3
Totals		226	678	314	951	106	88	0	45	43	50	50

•DPT – Direct Push Technology
•GW - Groundwater

•SW – Surface Water
•*SED - Sediment

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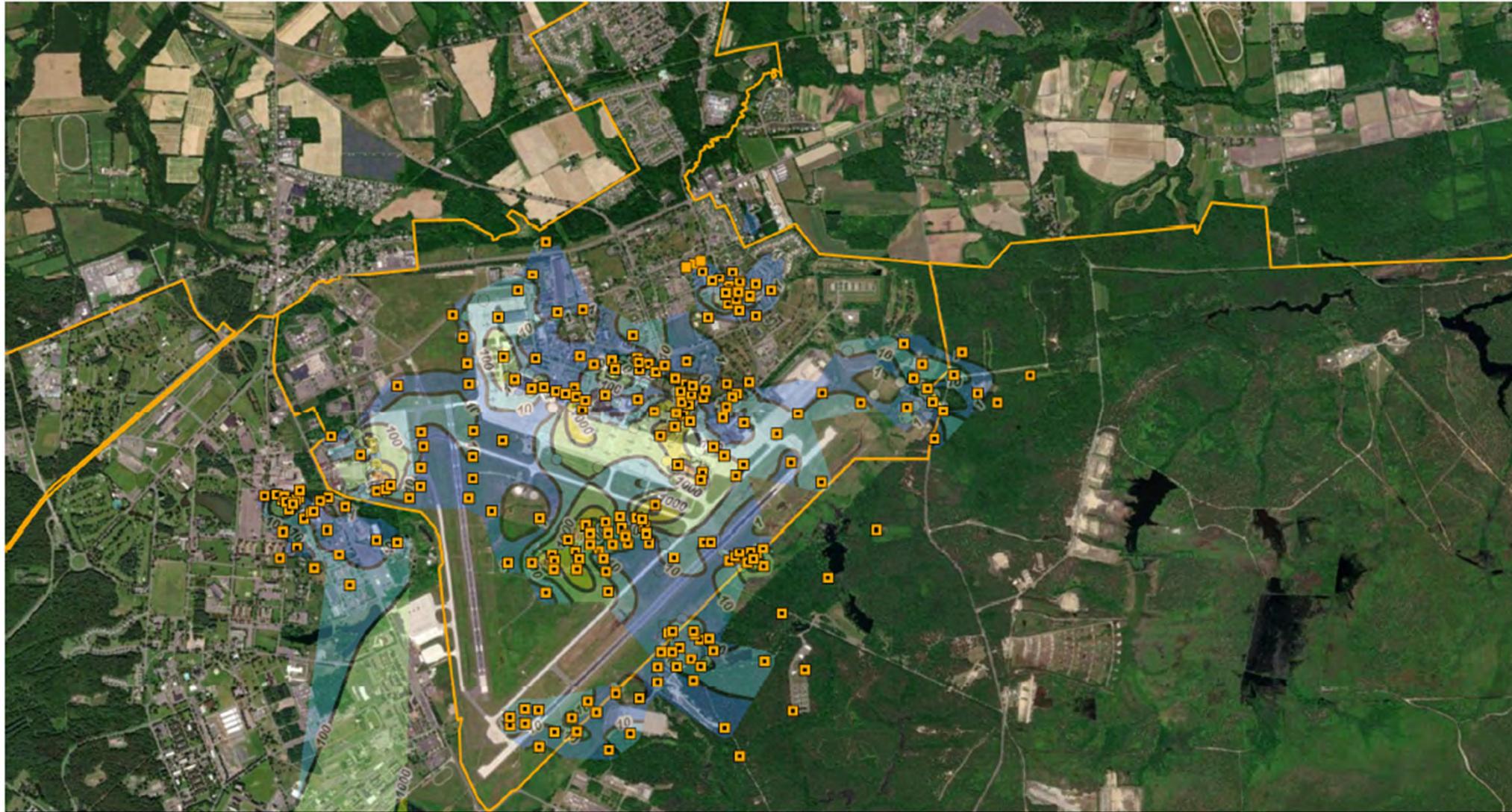
JB MDL McGuire/Dix Remedial Investigation Soil Sampling Locations



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JB MDL McGuire/Dix Remedial Investigation Groundwater Sampling Locations



“WIN AS ONE”



JB MDL McGuire/Dix Remedial Investigation Lysimeter Locations



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Lakehurst Remedial Investigation Sites



LAKEHURST PFAS SITES

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Site ID (IRP bold)	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



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Lakehurst RI Sample Summary (October 2023)



Installation	Site	DPT-GW		DPT-Soil		Existing Wells	New Wells		Lysimeters		SW/SED	
		Locations	Samples	Locations	Samples	Samples	Installed	Samples	Installed	Samples	Locations	Samples
Lakehurst	AT014P-Sub	24	72	25	75	8	3	0	3	3	3	3
Lakehurst	AT016P-Sub	25	75	32	96	9	7	0	3	3	3	3
Lakehurst	AT090P	18	54	26	78	1	13	0	3	2	3	3
Lakehurst	SS091P	18	54	23	69	6	6	0	3	3	3	3
Lakehurst	SS092P	19	57	25	75	2	11	0	3	3	4	4
Lakehurst	AT030P-Sub	23	69	24	72	15	12	0	3	3	3	3
Lakehurst	Area H	3	9	3	9	0	0	0	0	0	0	0
Totals		130	390	158	474	41	52	0	18	17	19	19

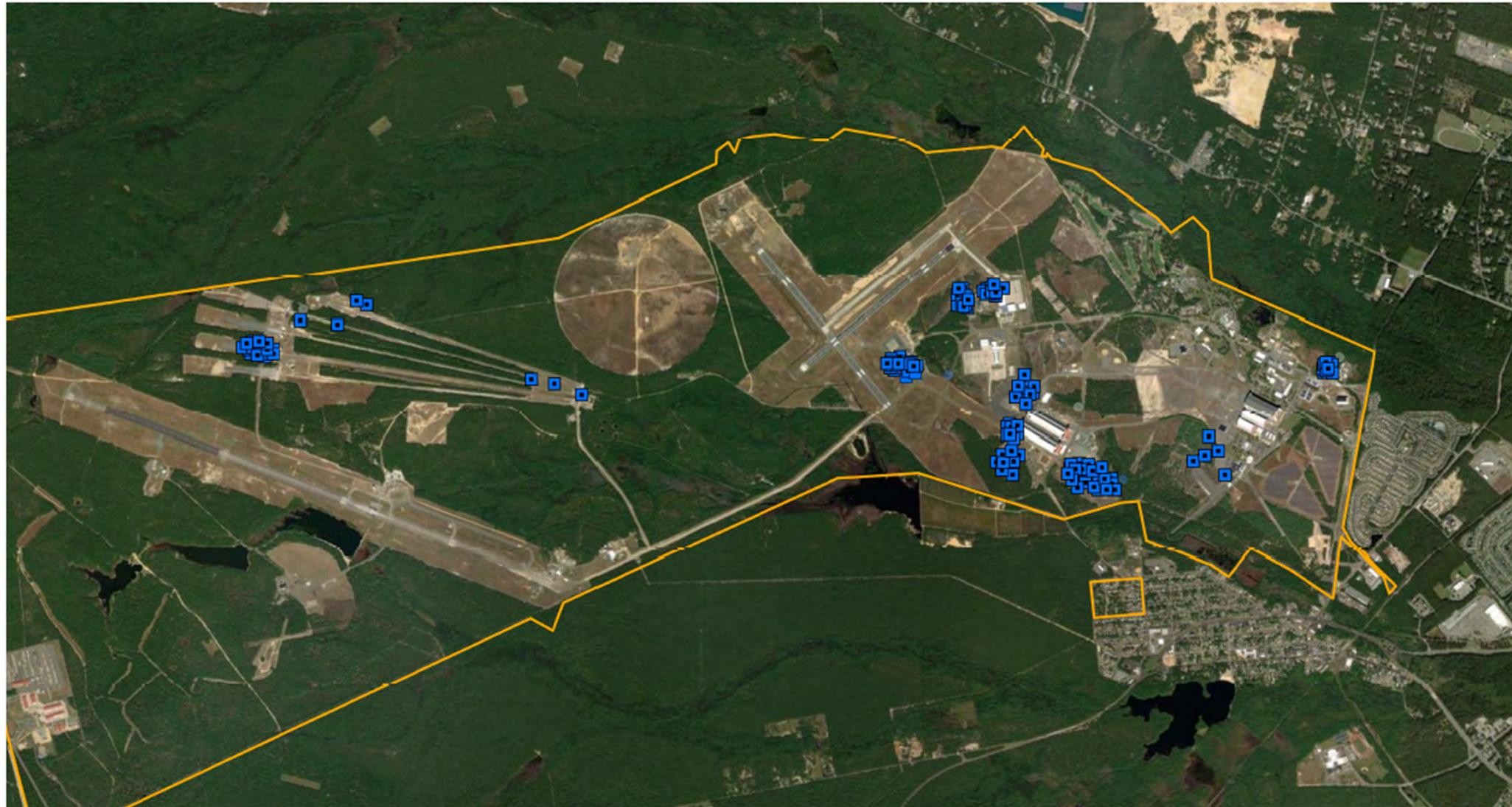
•DPT – Direct Push Technology
•GW - Groundwater

•SW – Surface Water
•*SED - Sediment

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JB MDL Lakehurst Remedial Investigation Soil Sampling Locations



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JB MDL Lakehurst Remedial Investigation Groundwater Sampling Locations



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JB MDL Lakehurst Remedial Investigation Lysimeter Locations



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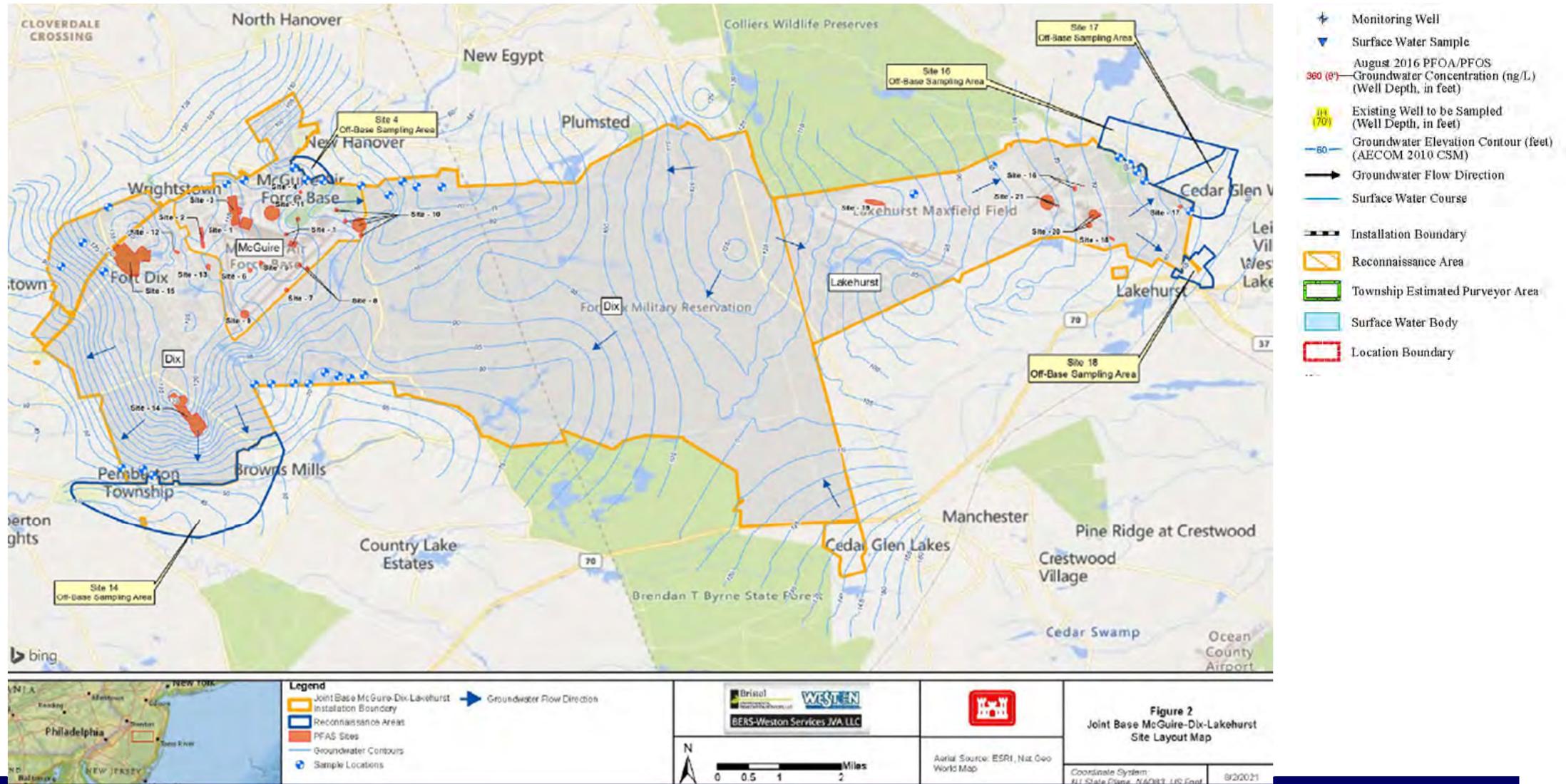
JB MDL Lakehurst Remedial Investigation Proposed Off-Base Surface Water and Groundwater Sampling Locations



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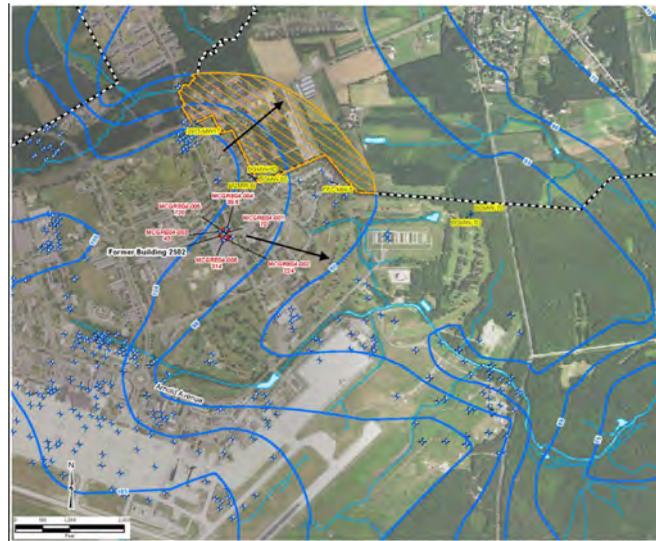
JB MDL Investigations / Off-base Sampling / Mitigation Activities Lakehurst Areas (2016 – 2022)



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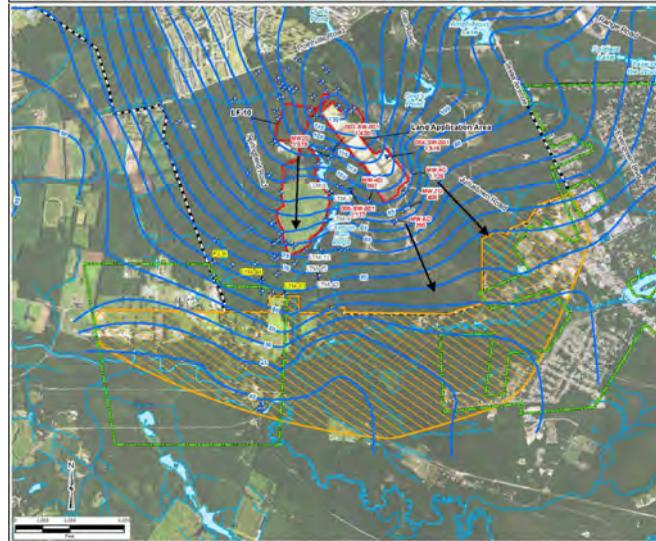
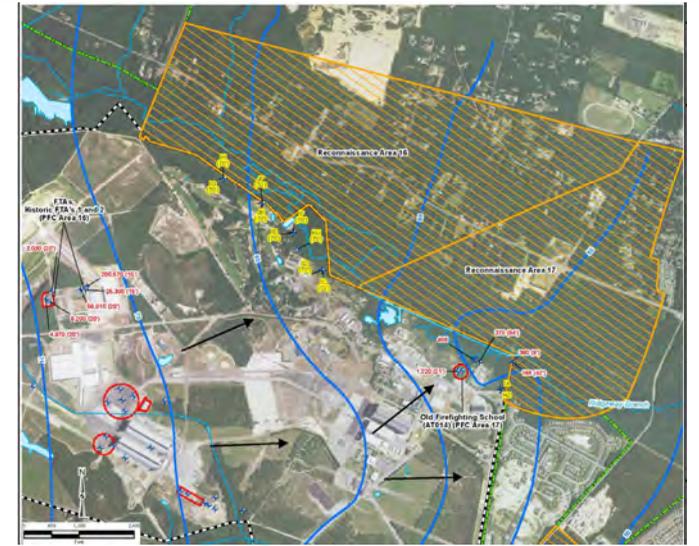
JB MDL Off-base Sampling PFAS Focus Area (2016-2022)



← McGuire (AFFF Area 4)
New Hanover Township

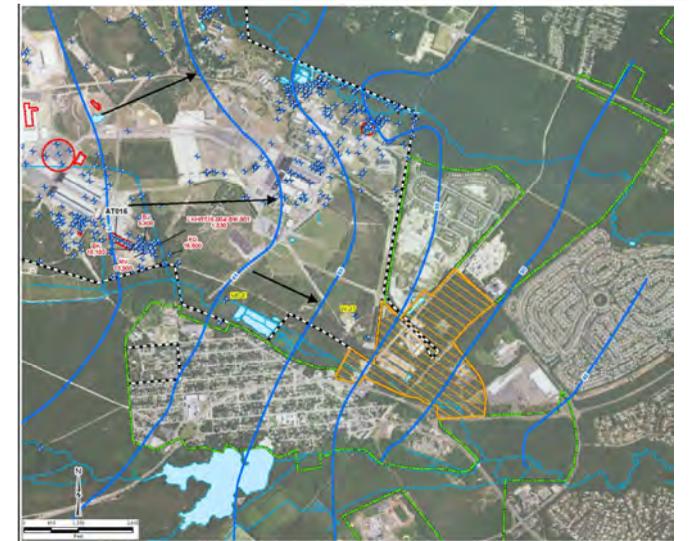
Lakehurst (AFFF Areas 16)
Jackson Township →

Lakehurst (AFFF Area 17)
Manchester Township →



← Dix (AFFF Area 14)
Pemberton Township

Lakehurst (AFFF Area 18)
Manchester Township →



- ✦ Monitoring Well
- ▼ Surface Water Sample
- 380 (e) August 2016 PFOA/PFOS Groundwater Concentration (ng/L.) (Well Depth, in feet)
- 70 Existing Well to be Sampled (Well Depth, in feet)
- 60 Groundwater Elevation Contour (feet) (AECOM 2010 CSM)
- Groundwater Flow Direction
- Surface Water Course
- Installation Boundary
- ▨ Reconnaissance Area
- ▭ Township Estimated Purveyor Area
- ▭ Surface Water Body
- ▭ Location Boundary

AFFF – Aqueous Film-forming Foam
PFAS – Per- and polyfluoroalkyl substances

PFOS - Perfluorooctane Sulfonate
PFOA - Perfluorooctanoic Acid

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JB MDL Off-base Sampling



- **Rapid Response (2016-2021) & Expanded Site Inspection (2018-2023) Contracts**
 - **Confirmed PFOS/PFOA > 70 ppt migrating off-base in 5 areas**
 - Magnitude of exceedances in groundwater
 - Distance to off base areas with shallow drinking water wells
 - Groundwater flow direction
 - **JB MDL, EPA, and NJDEP agreed to initial boundaries of focus areas**
 - **Identified potential off-base drinking water receptors with private wells (initial sampling Dec 2016)**
 - **Offered sampling of drinking water**
 - **Mitigated if drinking water > 70 ppt**
 - **Performed routine monitoring if PFOS/PFOA detected < 70 ppt**
 - **Installed limited number of monitoring wells in off-base focus areas to confirm adequacy of investigation areas (completed Dec 2022 – presented at May 2020 RAB)**

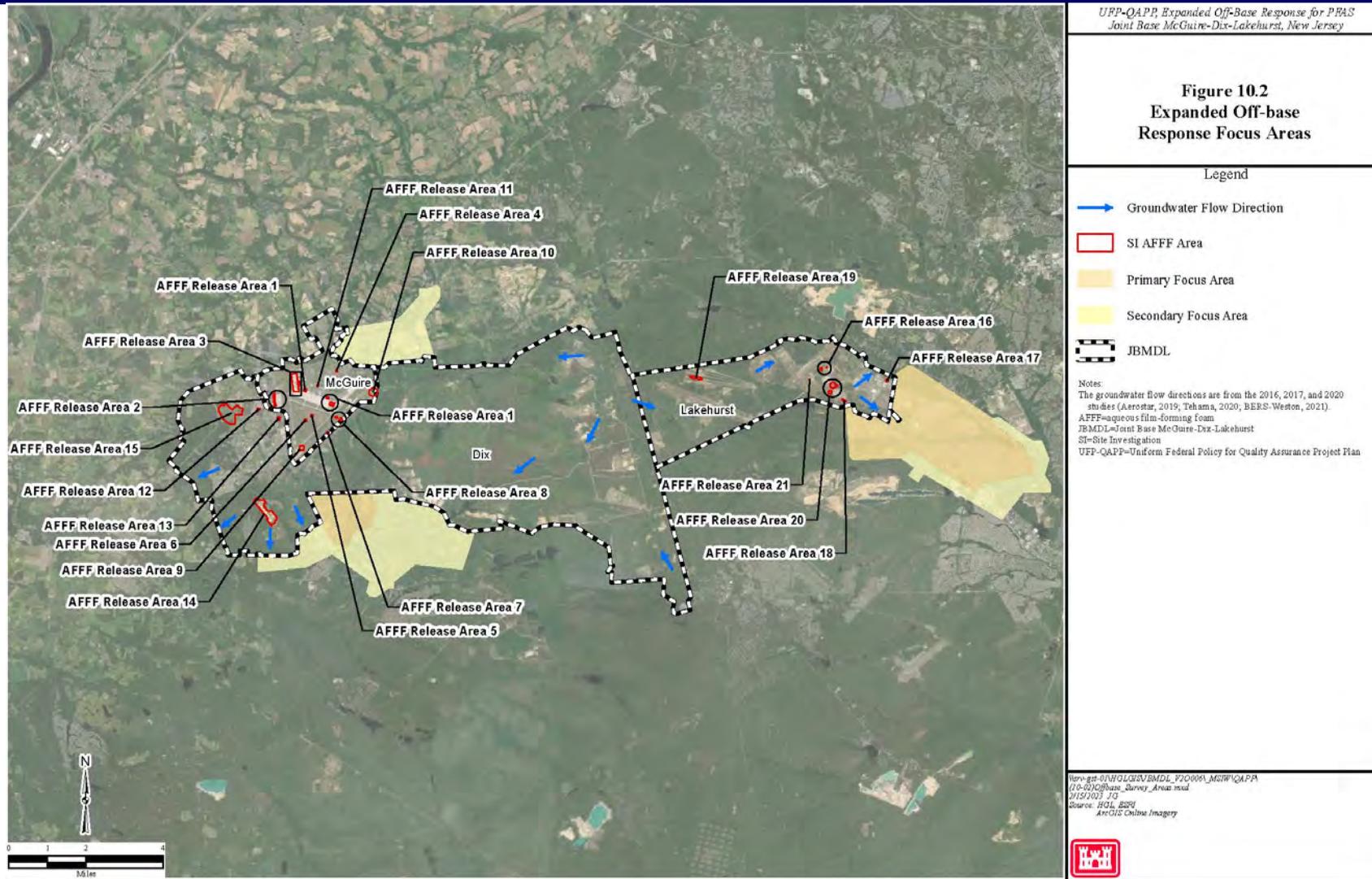
Off-Base Drinking Water Sampling Status
(Sept 2023)
Counts are Number of Properties

PFOS/PFOA Areas	Packages Distributed	Samples	Response Percentage	> 70 ppt	Routine Monitoring Locations
4	42	30	71%	0	1
14	41	28	68%	0	1
16	98	75	77%	1	13
17	77	53	69%	0	6
18	10	9	90%	0*	0*
TOTALS:	268	195	73%	1	21

- **Data Gaps:**
 - **Existing NJDEP Well Database is not complete**
 - **Depth of private wells unknown by majority of owners**

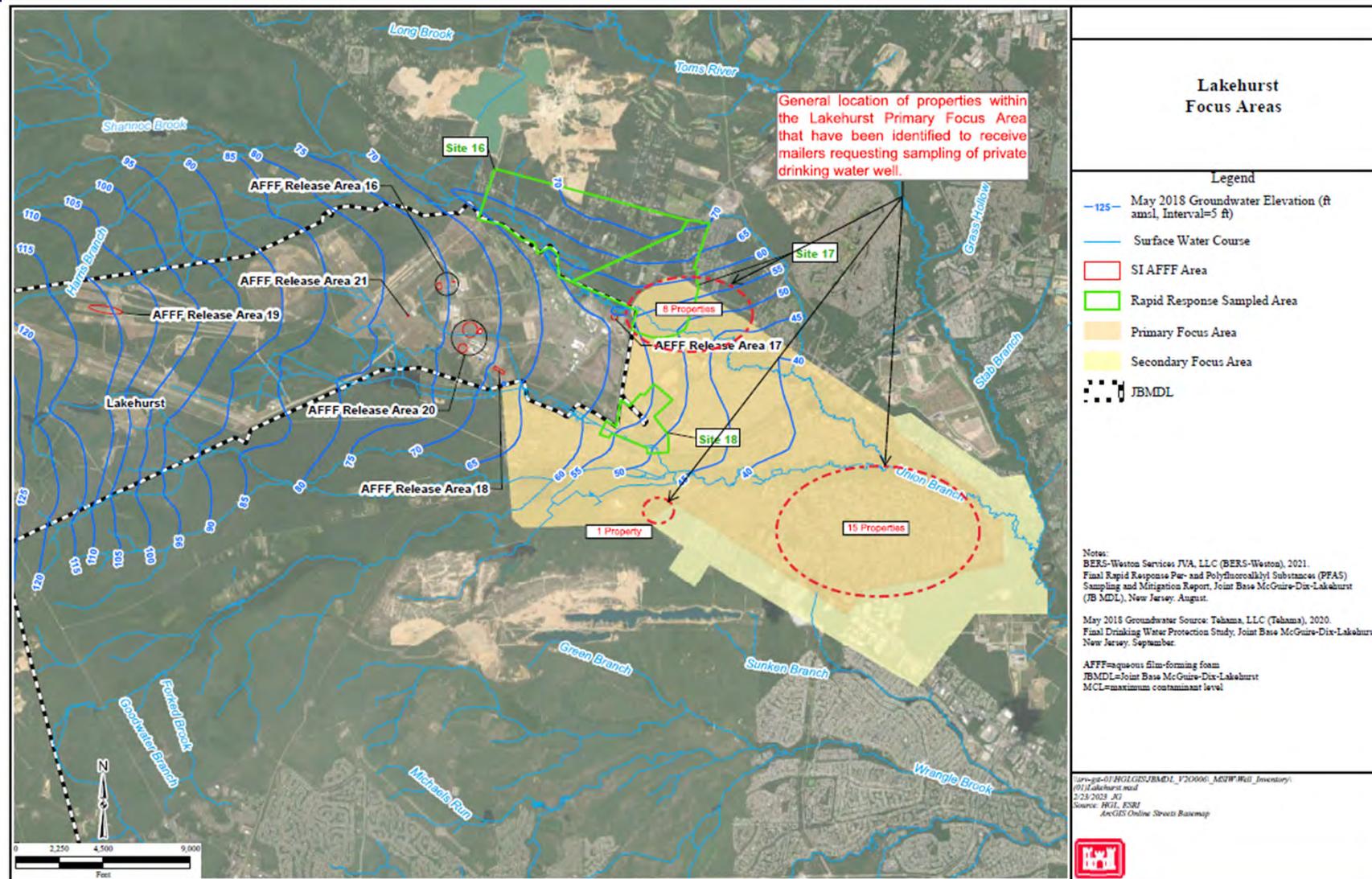


JB MDL Expanded Off-base PFAS Investigation Areas Sept 2022





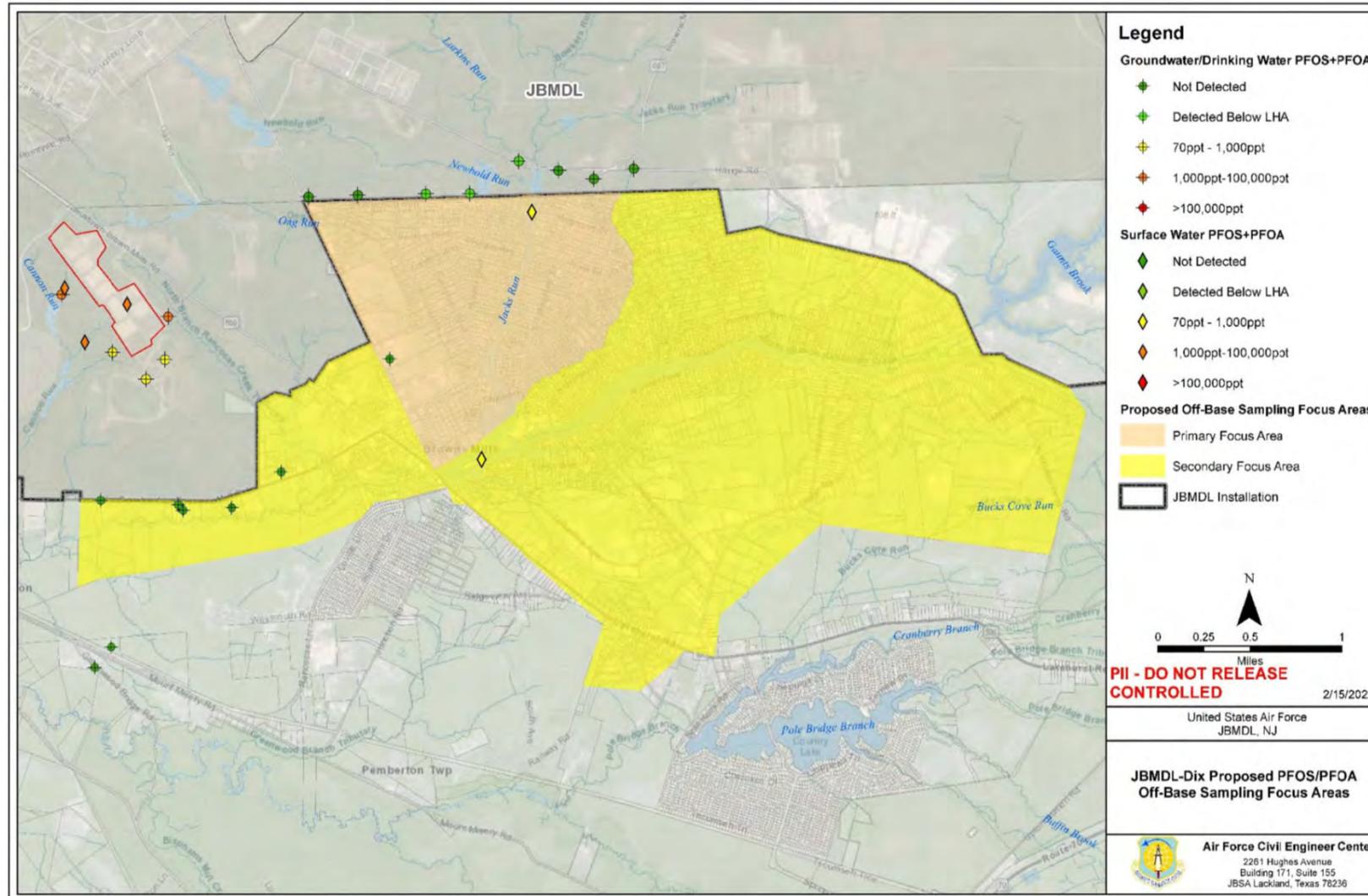
JB MDL Expanded PFAS Investigation Area Expanded Focus Area in Manchester Township





JB MDL Expanded PFAS Investigation Area

Expanded Focus Area in Pemberton TWP (Browns Mills)

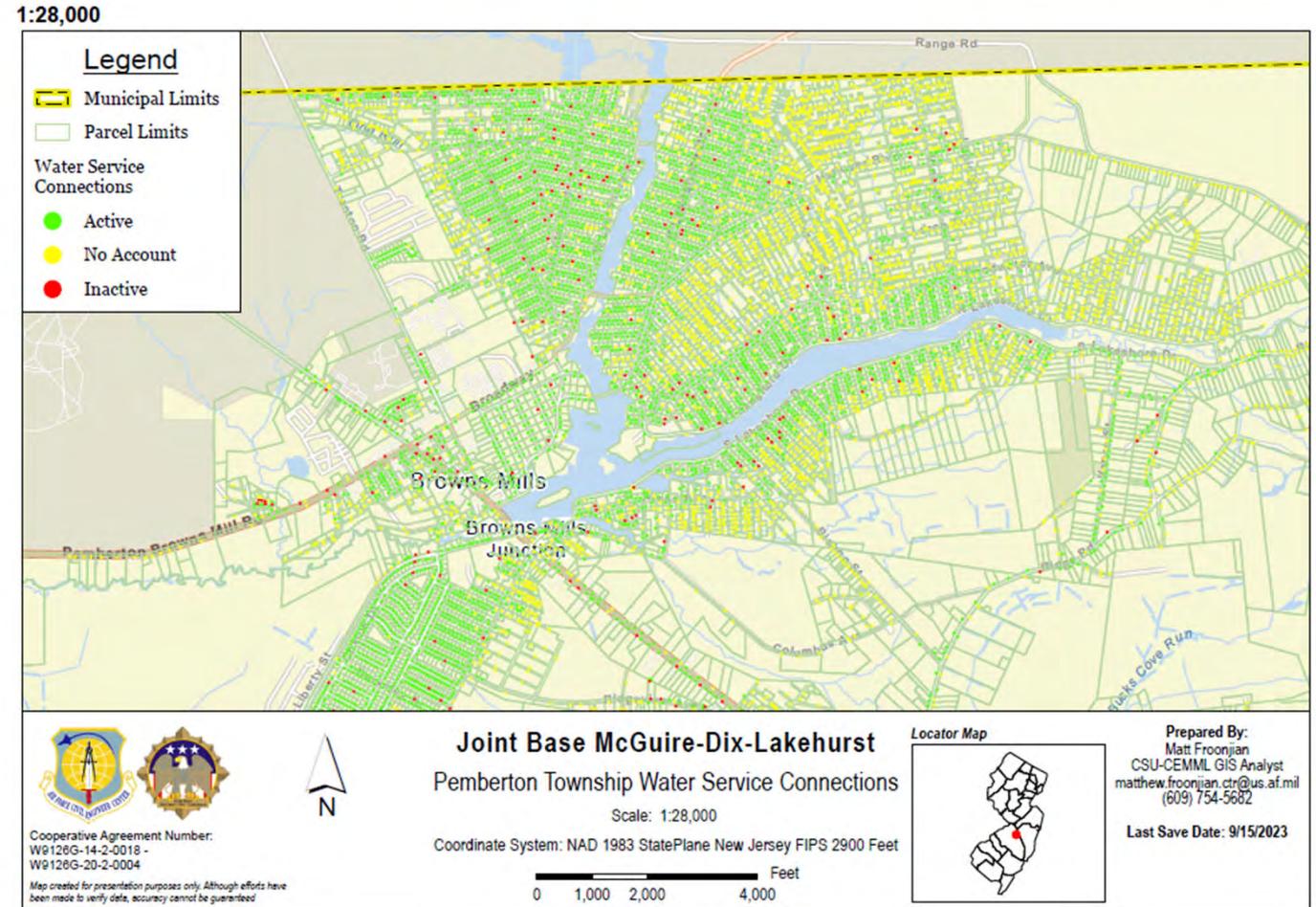




Pemberton Residents on Public Water



- AF obtained publicly available property data in Pemberton Township
 - 100% coverage
- Met with Pemberton Township officials 27 Sept 2023
 - Provided update of PFAS program
 - Requested consumer information of drinking water connections
- Identified properties with private drinking water wells
 - Cross reference Public Data with Township Data to determine who is not on municipal water
 - Cross reference with State well database to determine depth of well (<100 ft, wells expected in the surficial aquifer)
 - 170-190 properties (Primary Focus Area) with a private well will be offered to have drinking water well sampled by Air Force at no cost
 - 30-50 properties (Secondary Focus Area)



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Document Path: C:\Users\1600860328E\Documents\ArcGIS\Projects\Pemberton Wells\Pemberton Wells.aprx

Service Layer Credits: World Street Map: New Jersey Office of GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA



JB MDL PFAS Summary



- Continue CERCLA response actions/mitigations, as necessary
- Continue Remedial Investigation (RI) activities
 - On-base delineation nearing completion
 - Off-base groundwater and surface water to be sampled 2024
 - RI Report planned for 2025
- Continue and implement expanded off-base drinking water evaluations
 - Private wells in Primary Focus Area to be sampled later 2023/early 2024
 - Secondary Focus Area sampling in 2024
 - If results > 70 ppt for PFOS/PFOA, AF mitigate via a CERCLA response
 - If results > State MCLs – evaluate potential response pursuant to OSD Memo (22 Dec 2021)
 - Impacts are from an AF release
 - Upgradient drinking water well must exceed 70 ppt
 - Drinking water well being considered is hydraulically connected
 - Impacted drinking water well being considered is expected to exceed 70 ppt in the future
 - State MCLs approved ARARs by OSD
- Track issuance of EPA MCLs and OSD response



General PFAS Updates



QUESTIONS?



87th Air Base Wing



Joint Base McGuire-Dix-Lakehurst Contracting Update / Optimized Remediation Contract

**Mr. James Richman
Remediation Program Manager, AFCEC/CZOE**

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JB MDL PFAS Contracts Environmental Restoration Program Projects



Investigations:

■ Preliminary Assessment (2015)	\$XXXM	complete
■ Site Inspection (2016)	\$XXXM	complete
■ Expanded Site Inspection (off-base sampling) (2016-2021)	\$XXXM	complete
■ Expanded Site Inspection (off-base sampling) (2018-2023)	\$XXXM	complete
■ Expanded Site Inspection (mitigation - water line) (2021-2023)	\$XXXM	complete
■ Remedial Investigation (2020-2025)	\$XXXM	ongoing
■ Supplemental Due Diligence PFAS Source Investigations (2022-2023)	\$XXXM	ongoing

Other Actions:

■ Ion-exchange resin treatment system at JB MDL-Lakehurst	\$ XXXM	complete
■ New deep well/treatment building at JB MDL-Lakehurst	\$ XXXM	complete
■ Update Base/Regional Conceptual Site Model (partner with USGS)	\$ XXXM	complete
■ Lakehurst Area AB and C Treatment System Optimization Study	\$ XXXM	ongoing
■ PFOS/PFOA Database	\$ XXXM	ongoing
■ USGS Hydraulic Lake Studies	\$ XXXM	complete
■ Expanded Focus Areas for PFAS Response (Base, funded & unfunded options)	\$ XXXM	ongoing
■ Off-base NTCRA PFAS drinking water 1 site	<u>\$ XXXM</u>	ongoing
	\$41.61M	

Contract Acquisition

■ On-base NTCRA PFAS groundwater 2 sites (potential)	\$XXXM	FY2024
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NTCRA – non-time critical removal action
PFAS – Per- and polyfluoroalkyl substances

PFOS - Perfluorooctane Sulfonate
PFOA - Perfluorooctanoic Acid

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JB MDL “Legacy” Site Contracts Environmental Restoration Program Projects



- **Military Munitions Response Program (MMRP)**
 - **ZZ003 Surface sweep for Munitions and Explosive of Concern (MEC)**
 - Awarded Sept 2023 to Environmental Chemical Corp (ECC)
 - US Army Corps of Engineers (USACE) - Huntsville
 - **FR004 Magnetometer & Dig for MEC / ZZ001 Surface Sweep**
 - Performance Work Statement under preparation
 - Considering DGM or AGC
 - FY2024 award - USACE - Omaha
 - **ZZ003 RI/FS (Chemical Warfare Munition site) (FY2024) USACE - Huntsville**

- **Performance Based Remediation (2014 - Sept 2024)**
 - **Final documents under Air Force Administrative Record** <https://ar.afcec-cloud.af.mil/>
 - **Draft documents to be provided as Government Furnish Information (GFI)**
 - Estimated last sample data in reports: FY2024 Quarter-2
 - Last sample data provided as GFI: FY2024 Quarter-3



JB MDL “Legacy” Site Contracts Environmental Restoration Program Projects



■ Optimized Remediation Contract (new acquisition)

- US Army Cops of Engineers – Baltimore
- Contract type/business classification: Performance Based / unknown
- Performance Work Statement under preparation
- 10-year contract (FY2024-FY2034)
- Regulatory Framework: CERCLA NPL, CERCLA Non-NPL, Compliance (with LSRP)
- Regulatory Agency: US EPA Region 2, NJDEP
- Will include:
 - Environmental Restoration Program: 63-71 sites (50-52 McGuire, 6-9 Dix, 7-10 Lakehurst)
 - Feasibility Study (FS) / Proposed Plan (PP) / Record of Decision (ROD) / Remedial Design (RD)
 - Remedial Action-Construction (RA-C) / Remedial Action-Operation (RA-O) / Long-term Management (LTM)
 - Land Use Control Implementation Plan (LUCIP) and Biennial Groundwater Classification Exception Area
 - Military Munitions Response Program (MMRP) sites: 10 sites (6 McGuire, 1 Dix, 3 Lakehurst)
 - PP / ROD
 - Land Use Control implementation (with surface clearance at 1 site)
 - Annual Reporting / Remedial Action Completion Report
 - Air Force Step 2 Investigations for of 1,4-Dioxane: 10 sites
 - Investigative derived waste at co-located PFAS sites
- Will NOT include:
 - PFAS site investigations (current or future new sources) / mitigation
 - Chemical Warfare Munition



Optimized Remediation Contract



McGuire Sites

“WIN AS ONE”



Operable Unit 1



Operable Unit 1 (3 NPL sites) located outside the secure area to the north:

- LF003 (Landfill No. 2)
 - 21.5-acre former landfill which operated from 1950 until the early 1960s. Issues include buried waste, groundwater impacts, surface water impacts.
- LF004 (Landfill No. 3)
 - 2.5-acre former landfill which operated from 1956 to 1957. Issues include buried waste, groundwater impacts, surface water impacts.
- ST007 (Former Defense Reutilization and Marketing Office [DRMO] Storage Yard)
 - Used as a material and hazardous waste storage facility from 1960 until 1998. PCBs in soil are below industrial use levels but above residential use levels.
- RA-C completed Jan 2023.
- Requires 4 quarters of sampling post-construction before a RACR can be prepared to document response complete.
- ORC Next Step
 - RACR to achieve Response complete
 - Continue LTM



Optimized Remediation Contract (ORC)



- Operable Unit (OU): 1 (EPA-lead, CERCLA, NPL)
- Sites: LF003/ST007, LF004
- Current CERCLA Phase: RA-C
- Current Document in Review Cycle: Internal Draft OU1 IRACRs (LF003/ST007 & LF004)
- Most recent document(s) in Administrative Record: Final OU1 Remedial Design; Documentation of Compliance with State ARARs; Tech Memo for Field Documentation (LF003 & LF004)
- PBR Expected Endpoint: Final LF003/ST007 & LF004 IRACRs (achieves RIP milestone)
- ORC Starting Task:
 - Prepare RACR (achieve RC milestone)
 - Continue LTM: quarterly groundwater and surface water monitoring, cap maintenance, LUC inspections
- ORC Endpoint: Achieve RC and continue LTM through contract

•CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
•IRACR – Interim Remedial Action Completion Report
•LTM – Long-term Management

•LUC – Land Use Control
•NPL – National Priorities List

“WIN AS ONE”

•PBR – Performance Based Remediation
•RACR – Remedial Action Completion Report
•RA-C – Remedial Construction

•RIP – Remediation-in-place
•RC – Response Complete



Operable Unit 2

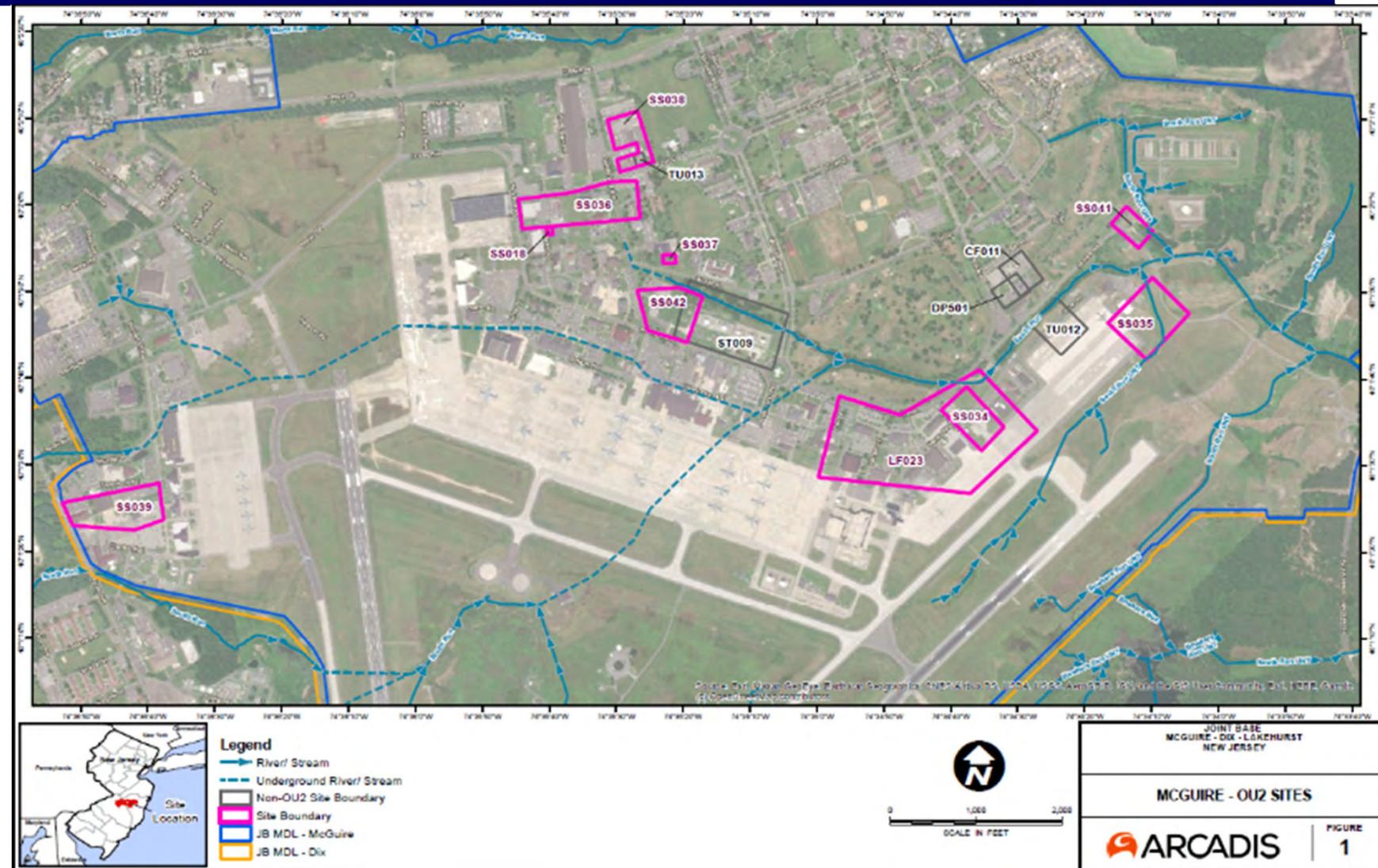


ORC Next Step: Proposed Plan

Unacceptable Risk: Media, Feasibility Study leading alternative

- SS018 – yes, active soil
- SS034/LF023 – yes, active groundwater (non-aqueous phase liquid [NAPL])
- SS035 – yes, active groundwater
- SS036 – yes, active groundwater (NAPL), vapor mitigation
- SS037 – yes, passive groundwater
- SS038 – yes, active groundwater (NAPL)
- SS039 – yes, passive groundwater
- SS041 – yes, passive groundwater
- SS042 – yes, passive groundwater, passive soil

PFAS likely present in groundwater



•ORC – Optimized Remediation Contract
 •PFAS – Per- and polyfluoroalkyl substances

“WIN AS ONE”



OU2 SITE HISTORY AND KEY ISSUES



SS018 (PCB Spill Site)

- A spill of transformer fluid (containing PCBs) occurred at this site in 1982 which resulted in contamination of soils. A partial removal was conducted in 1992 but additional action is required to achieve site closure. Soil is the only media impacted.

LF023 (co-located with SS034)

- Potential solid waste historically disposed. No waste has been identified. Groundwater impacts associated with SS034. This is no further action site. Record of decision should be used to close out site.

SS034 (Buildings 1708, 1800 Series)

- The buildings included in this site supported airfield operations (maintenance/parts cleaning etc.). Operations at a Wash Rack and Oil Water Separators (OWS) resulted in waste oils, waste jet fuel, and waste solvents being released. Non-aqueous Phase Liquid (NAPL) is present near the former wash rack. Groundwater is the only media impacted.

SS035 (Buildings 1908, 1925, 1929, 1931, 1932, 1937)

- Operations of a former Underground Storage Tank (UST) farm at this site resulted in solvents and other contaminants (fuel oils) being released. Groundwater is the only media impacted.

SS036 (Building 2300 Series and 3200 Series)

- Aircraft maintenance and operation of a former lime-chip tank and catch basin resulted in significant releases of solvents, mineral spirits, and metals. NAPL is present in the subsurface. Groundwater is the primary impacted media. The buildings are monitored annually for vapor intrusion issues and remain safe for industrial use.



OU2 SITE HISTORY AND KEY ISSUES



SS037 (Building 2415)

- Operation of an automobile repair facility resulted in releases from a waste oil tank and former UST. No solvents or fuels are present but inorganics (metals) in groundwater are elevated likely as a result of these releases in the past. Groundwater is the only impacted media.

SS038 (Building 3001)

- Operation of multiple USTs and OWSs in the past resulted in releases of solvents. Steam cleaning and bulk storage of chemicals likely also contributed to the releases. Groundwater is the only impacted media.

SS039 (Building 3300 Series and Building 3362)

- Operation of multiple USTs in the past, and former bulk storage of chemicals, resulted in releases in the past. No solvents or fuels are present but inorganics (metals) and pesticide in groundwater are elevated likely as a result of these releases in the past. Groundwater is the only impacted media.

SS041 (Spill Site: Former Buildings 1940, 1942, and 1943)

- Operations associated with golf course maintenance resulted in releases in the past. No solvents or fuels are present but inorganics (metals) in groundwater are elevated likely as a result of these releases in the past. Groundwater is the only impacted media.

SS042 (Former Central Heat Plant)

- The former heating plant used significant quantities of coal and other fuels that resulted in impacts to both soil and groundwater.



Optimized Remediation Contract (ORC)



- Operable Unit (OU): 2 (EPA-lead, CERCLA, NPL)
- Sites: SS034/LF023, SS035, SS036, SS037, SS038, SS039, SS041, SS042
- Current CERCLA Phase: Feasibility Study (FS)
- Current Document in Review Cycle: Draft Final OU2 FS with regulator comments (requires migration to groundwater evaluation); Draft Indoor Air Notification Monitoring 2022-202 Heating Season (SS036)
- Most recent document(s) in Administrative Record: Final OU2 Remedial Investigation Report; Indoor Air Notification Monitoring 2021-2022 Heating Season (SS036)
- PBR Expected Endpoint: Final FS
- ORC Starting Task:
 - Proposed Plan
 - SS036: Continue Indoor Air Reconnaissance/Sampling
- ORC Endpoint: Achieve RA-O (Year 6) and continue RA-O through contract



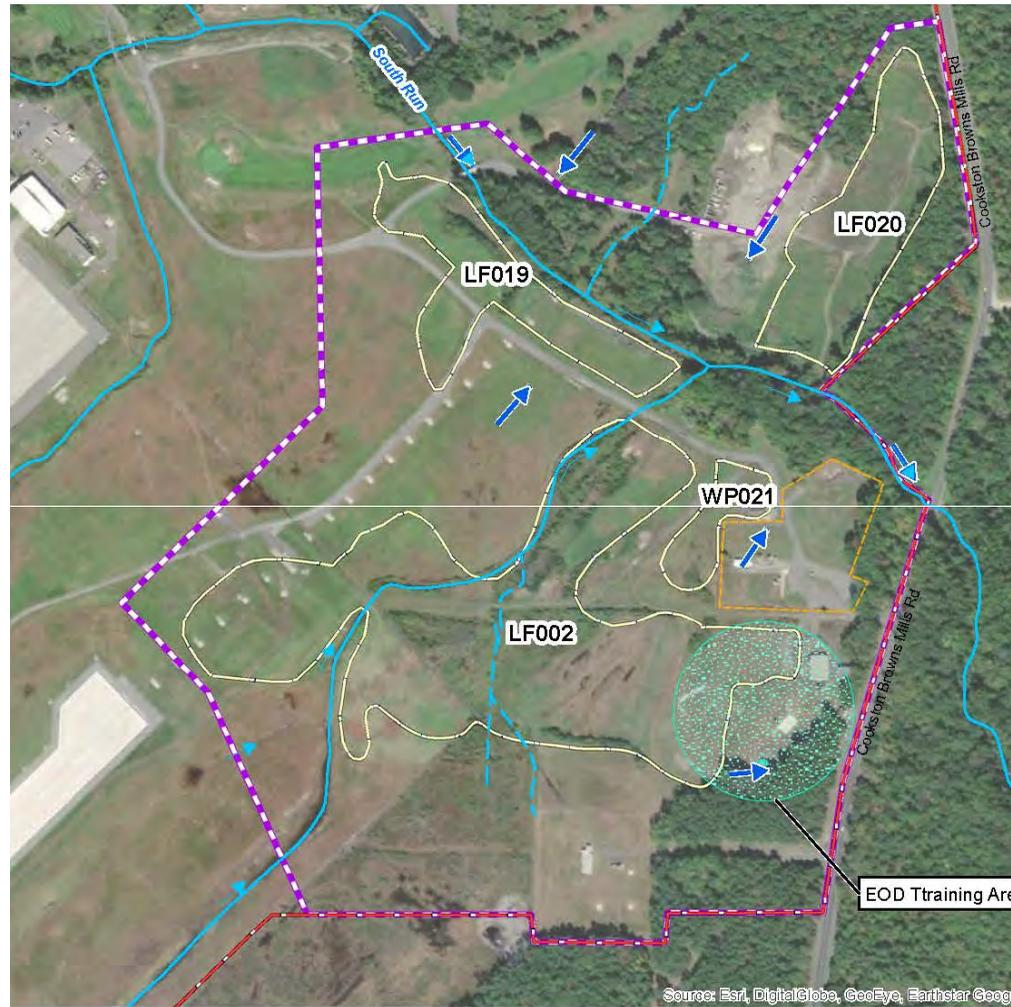
Optimized Remediation Contract (ORC)



- Operable Unit (OU): 2 (EPA-lead, CERCLA, NPL)
- Sites: SS018
- Current CERCLA Phase: Feasibility Study (FS)
- Current Document in Review Cycle: Draft Final OU2 FS with regulator comments
- Most recent document(s) in Administrative Record: Final OU2 Remedial Investigation Report
- PBR Expected Endpoint: Final FS
- ORC Starting Task:
 - Proposed Plan
- ORC Endpoint: Achieve RC/Site Closure (Year 5)



Operable Unit 3



Operable Unit 3 (4 NPL sites) located northeast of runway 06/24 within clear zone:

- LF002 (Landfill No. 4)
 - 25-acre former landfill. Issues include buried waste, groundwater impacts, surface water impacts.
- LF019 (Landfill No. 5)
 - 5.5-acre former landfill which operated from 1956 to 1957. Issues include buried waste, groundwater impacts, surface water impacts.
- LF020 (Landfill No. 5)
 - 6.5-acre former landfill. Issues includes buried waste, groundwater impacts, surface water impacts.
- WP021 (Wastewater Treatment Plant Disposal Area)
 - 1.0-acre former sludge drying area. PCB soil addressed in PBR
- RA-C at LF002 and LF020 completed Apr 2023
- RA-C at WP021 on-going
 - Will be a no further action site for PCBs (not in ORC)
 - Site will remain open for PFAS
- Requires 4 quarters of sampling post-construction before a RACR can be prepared to document response complete.
- ORC Next Step
 - RACR to achieve RC LF002 & LF020
 - Perform RA-C and achieve RC LF019
 - Continue LTM LF002 / LF019 / LF020

- LTM – Long-term Management
- NPL – National Priorities List
- ORC – Optimized Remediation Contract

“WIN AS ONE”

- PBR – Performance Based Remediation
- PFAS – Per- and polyfluoroalkyl substances
- RACR – Remedial Action Completion Report

- RA-C – Remedial Action Construction
- RC – Response Complete



Optimized Remediation Contract (ORC)



- Operable Unit (OU): 3 (EPA-lead, CERCLA, NPL)
- Sites: LF002, LF020, WP021
- Current CERCLA Phase: RA-C
- Current Document in Review Cycle: Internal Draft OU3 IRACR (LF002/LF020/WP021)
- Most recent document(s) in Administrative Record: Final OU3 Remedial Design; Documentation of Compliance with State ARARs; Tech Memo for Field Documentation (LF002 & LF020)
- PBR Expected Endpoint: Final OU3 IRACR (LF002/LF020/WP021)(achieves RIP milestone; RC milestone for WP021)
- ORC Starting Task:
 - LF002/LF020: Prepare RACR (achieve RC milestone)
 - LF002/LF020 continue LTM: quarterly groundwater and surface water monitoring, cap maintenance, LUC inspections
- ORC Endpoint: Achieve RC and continue LTM through contract

•CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

•IRACR – Interim Remedial Action Completion Report

•LTM – Long-term Management

•LUC – Land Use Control

•NPL – National Priorities List

“WIN AS ONE”

•PBR – Performance Based Remediation

•RACR – Remedial Action Completion Report

•RA-C – Remedial Action Construction

•RIP – Remediation-in-place

•RC – Response Complete



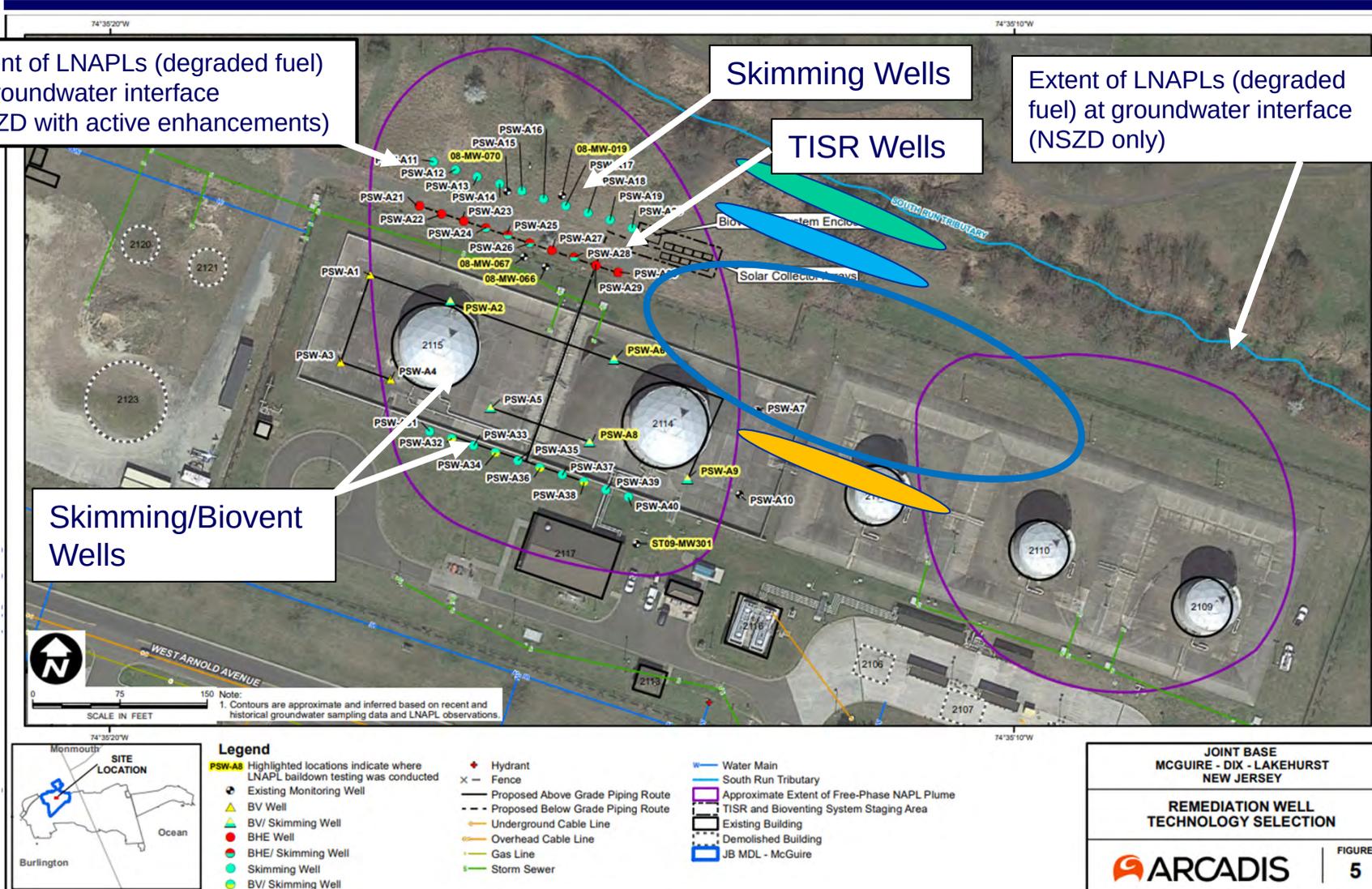
Optimized Remediation Contract (ORC)



- Operable Unit (OU): 3 (EPA-lead, CERCLA, NPL)
- Sites: LF019
- Current CERCLA Phase: Record of Decision
- Current Document in Review Cycle: Draft LF019 Record of Decision with regulator comments
- Most recent document(s) in Administrative Record: Final OU3 Feasibility Study Addendum / Final OU3 Proposed Plan
- PBR Expected Endpoint: Final LF019 Remedial Design
- ORC Starting Task:
 - Implement Remedy (RA-C)
- ORC Endpoint: Achieve RC and continue LTM through contract



Operable Unit 4



Operable Unit 4 (1 NPL site): located within Cantonment Area

- ST009 (Bulk Fuel Storage Area)
 - 19-acres.
 - Active facility; multiple 500K- & 850K-gallon above ground tanks
 - Issues include petroleum fuels in groundwater impacts, light non-aqueous phase liquids (LNAPLs) in subsurface (~150K-gallons).
 - Remedy is >50 years
- RA-C on-going
 - NSZD, Thermal In-situ Remediation (TISR), skimming, bioventing
- Requires 4 quarters of sampling post-construction before an IRACR can be prepared to document RIP
- ORC Next Step
 - IRACR to achieve RIP LF020
 - Continue RA-O
- PFAS likely present in groundwater

•IRACR – Interim Remedial Action Completion Report
 •NPL – National Priorities List
 •NSZD – Natural Source Zone Depletion

•ORC – Optimized Remediation Contract
 •PFAS – Per- and polyfluoroalkyl substances

“WIN AS ONE”

•RA-C – Remedial Action Construction
 •RA-O – Remedial Action Operations
 •RIP – Remediation-in-place



Optimized Remediation Contract (ORC)



- Operable Unit (OU): 4 (EPA-lead, CERCLA, NPL)
- Sites: ST009
- Current CERCLA Phase: RA-C
- Current Document in Review Cycle: Draft Documentation of Compliance with State ARARs
- Most recent document(s) in Administrative Record: Final OU4 Remedial Design
- PBR Expected Endpoint: Tech Memo for Field Documentation
- ORC Starting Task:
 - Continue Year 1 performance monitoring and prepare IRACR (achieves RIP milestone)
- ORC Endpoint: Achieve RA-O and continue RA-O through contract



Operable Unit 5



SS024 (C-17 Hangar)

- 4-acre NPL site located on the airfield. C-17 hangar occupies this location. Contamination is associated with former hangar operations that included aircraft maintenance, an aircraft wash rack, and an oil-water-separator. Historical solvent releases have impacted groundwater.
- Unacceptable risk in groundwater
- PFAS likely in groundwater

SS025 (Former Pesticide Shops)

- 35-acre NPL site located on the northern fence line of the Base. Three former pesticide shops where batches of pesticide solutions were prepared.
- Unacceptable risk in soils and groundwater
- Portion of soil failed Toxic Characteristic Leaching Procedure (TCLP)

SS026 (Former Pesticide Shop)

- 9-acre NPL site located on the former Falcon Creek golf course.
- No further action site



•NPL – National Priorities List
•PFAS – Per- and polyfluoroalkyl substances



Optimized Remediation Contract (ORC)



- Operable Unit (OU): 5 (EPA-lead, CERCLA, NPL)
- Sites: SS024, SS025, SS026 (no further action)
- Current CERCLA Phase: Feasibility Study (FS)
- Current Document in Review Cycle: Draft Final OU5 Proposed Plan (PP); Internal Draft OU5 FS Addendum (requires migration to groundwater evaluation)
- Most recent document(s) in Administrative Record: Final OU5 FS
- PBR Expected Endpoint: Final OU5 FS Addendum
- ORC Starting Task:
 - Revise and finalize PP & Public Meeting
- ORC Endpoint:
 - SS024: achieve RC/SC (Year 3)
 - SS025/SS026: achieve RA-O (Year 4) and continue RA-O through contract



Operable Unit 6



- ORC Next Step: Revise Final Feasibility Study (FS)
- Sites ST022 / SS030 / SS031 / SS032 / SS033
 - Unacceptable risk in groundwater
 - Groundwater from compliance sites SS015, TU022, and TU023 consolidated into OU6
 - PFAS likely in groundwater
- FS evaluated 10 plumes (Alpha – Hotel)
 - Shallow: 10 areas
 - Intermediate: 6 areas
 - Deep: 3 areas
- Treatment Alternatives
 - Monitored natural attenuation
 - Is-situ Chemical Oxidation
 - Pump & Treat
 - Biosparge / Soil Vapor Extraction
 - Land use controls





OU6 SITE HISTORY AND KEY ISSUES



ST022 (Aircraft Apron Fuel Leak)

- Site is on the active apron and was the location of the principal fuel release at OU6. The release occurred with the rupture of the JP-4 fuel lines in 1988 and an unknown quantity of fuel was released. Groundwater is impacted with jet-fuel constituents and low levels of other solvents. There is minimal unsaturated soil beneath the apron; no unacceptable risk/basis of action for soils.

SS030 (Apron Hydrant System South of 2251/2253)

- Site is a paved area used for secure aircraft parking, maintenance, and refueling. Three fuel release areas have impacted groundwater. No unacceptable risk/basis of action for soils.

SS031 (Apron Hydrant System South of 1706/1731)

- Site is a paved area also used for aircraft parking, maintenance. Two fuel release areas have impacted groundwater. No unacceptable risk/basis of action for soils.

SS032 (Hydrant Line Crossings and Underground Storage Drains)

- Consists of the main surface water drainage lines under the apron and discharge to South Run. There are three 120-inch pipes approximately 2,500 feet in length. There are no impacts to surface water or sediment. No unacceptable risk/basis of action for soils.

SS033 (Buildings 1750 and 1751)

- Located immediately south of OU4 (Bulk Fuel Storage Area) and is an aircraft maintenance area. Small spills appear to have occurred here in the past. No unacceptable risk/basis of action for soils.

OU6 also incorporates groundwater from State Compliance Sites SS015, TU022, and TU023. Soil impacts from these sites have been addressed and the sites closed by the State with the understanding that groundwater (co-located with OU6) will be addressed by the NPL program



Optimized Remediation Contract (ORC)



- **Operable Unit (OU): 6 (EPA-lead, CERCLA, NPL)**
- **Sites: ST022, SS030, SS031, SS032, SS033**
- **Current CERCLA Phase: Feasibility Study (FS)**
- **Current Document in Review Cycle: Draft OU6 Proposed Plan (PP); Internal Draft OU6 FS Addendum (requires migration to groundwater evaluation)**
- **Most recent document(s) in Administrative Record: Final OU6 FS; Indoor Air Notification Monitoring 2021-2022 Heating Season**
- **PBR Expected Endpoint: Final OU6 FS Addendum**
- **ORC Starting Task:**
 - **Revise and finalize PP & Public Meeting**
 - **Continue Indoor Air Reconnaissance/Sampling**
- **ORC Endpoint: Achieve RA-O (Year 6) and continue RA-O through contract**



Operable Unit 7



- ORC Next Step: Revise Draft Feasibility Study (FS)
- Sites OT006 / OT010 / SS027 / SS040
 - Unacceptable risk in groundwater
 - Groundwater from compliance site TU018 and TU029 consolidated into OU7
- 1 Comingled plume - diverging into 2
 - Shallow: Fuels
 - Intermediate: Fuels, Solvents
 - Deep: Fuels, Solvents
- Treatment Alternatives
 - Monitored natural attenuation
 - Enhanced In-site Bioremediation
 - Is-situ Chemical Oxidation
 - Land use controls





OU7 SITE HISTORY AND KEY ISSUES



OT006 (Pesticide Wash Area)

- Pesticide and Herbicide mixing occurred at this former Entomology Shop between 1974 and 2008. Operations included use of other materials including fuel oil, kerosene, and xylenes.

OT010 (Civil Engineering Compound)

- Site use since the 1940's has been for general storage including vehicles, electrical equipment, and construction materials.

SS027 (Road and Grounds Pesticide Mixing Shop)

- The site was used to mix large quantities of pesticides using oil based dilutants between 1963 to 1974.

SS040 (Building 3401)

- Building 3401 was a large aircraft hangar used for aircraft maintenance. A wide variety of chemicals and solvents were used at this site resulting in significant groundwater impacts—both solvents and fuels. Under the PBR a bioremediation pilot test was conducted at this site, but final remedy evaluations are pending.



Optimized Remediation Contract (ORC)



- Operable Unit (OU): 7 (EPA-lead, CERCLA, NPL)
- Sites: OT006, OT010, SS027, SS040
- Current CERCLA Phase: Feasibility Study (FS)
- Current Document in Review Cycle: Draft OU7 FS (requires migration to groundwater evaluation)
- Most recent document(s) in Administrative Record: Final OU7 Remedial Investigation / SS040/FT008 Pilot Study Report
- PBR Expected Endpoint: Revised Draft OU7 FS
- ORC Starting Task:
 - Finalize FS
- ORC Endpoint: Achieve RA-O (Year 6.5) and continue RA-O through contract



Operable Unit 8



- ORC Next Step: Revise Draft Feasibility Study (FS)
- OU7 includes Sites FT008 / FT011 / FT013 / OT014 / AT028 / AT029
 - Unacceptable risk in groundwater
 - Unacceptable risk in soil (FT008, FT013, AT028)
 - No further action (OT014); PFAS in groundwater
- Shallow & Intermediate Plumes (isolated in limited in area)
- Groundwater discharges to surface water
- Treatment Alternatives
 - Monitored natural attenuation
 - Enhanced In-site Bioremediation
 - Is-situ Chemical Oxidation
 - Land use controls
- PFAS likely present in groundwater



•ORC – Optimized Remediation Contract
•OU – Operable Unit
•PFAS – Per- and polyfluoroalkyl substances

“WIN AS ONE”



OU8 SITE HISTORY AND KEY ISSUES



FT008 (Fire Protection Area 1)

- 3-acre site that was used between 1940 to 1955 for fire training exercises. These activities have resulted in significant impacts to groundwater and surface water which will need to be addressed. The site was also the subject of an in-situ bioremediation study under the PBR but final remedy evaluations are pending.

FT011 (Fire Protection Area 2)

- Former training area used between 1958 and 1973. Environmental impacts at this site are relatively minimal.

FT013 (Fire Protection Area 3)

- Fire training area used between 1973 and the early 1980s. Impacts to groundwater, surface water, and soil are documented at this site.

OT014 (NDI Drain Shop)

- Site was used between 1966 and 1972 for inspection of aircraft parts using x-ray and penetrating dyes. Wastes were discharged to the ground surface during this time. Impacts to both groundwater and surface water are documented.

AT028 (Suspected Fire Training Area 4)

- 3-acre site. Patches of charred metal ashes near a former building footprint were observed but little site history is available. Impacts to groundwater, surface water, and soil have been documented.

AT029 (Suspected Fire Training Area 5)

- Suspected former fire training area with minimal operational history available. Impacts to groundwater and surface water are documented at this site.



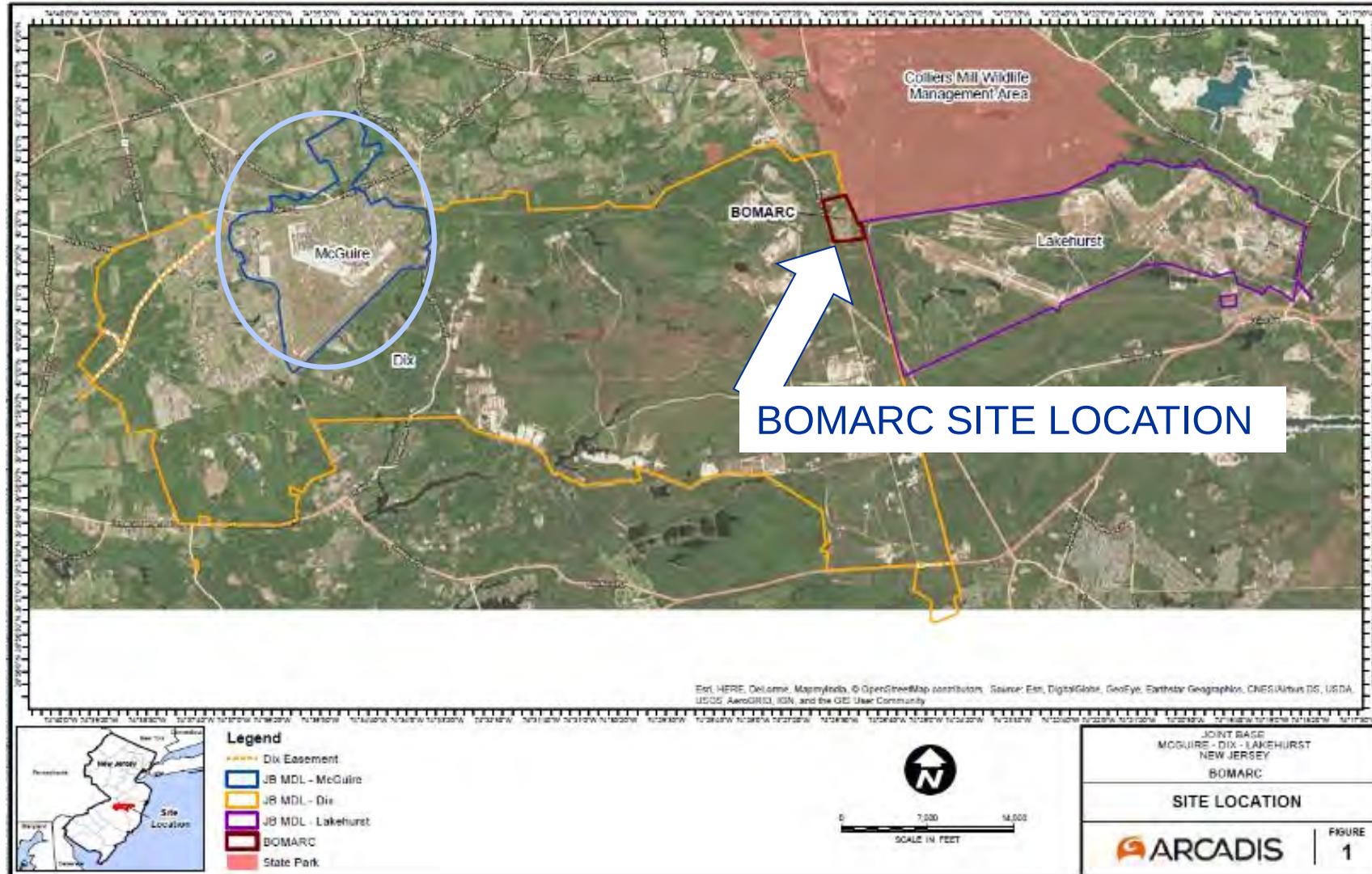
Optimized Remediation Contract (ORC)



- Operable Unit (OU): 8 (EPA-lead, CERCLA, NPL)
- Sites: AT028, AT029, FT008, FT011, FT013, OT014
- Current CERCLA Phase: Feasibility Study (FS)
- Current Document in Review Cycle: Draft OU8 FS (requires migration to groundwater evaluation)
- Most recent document(s) in Administrative Record: Final OU8 Remedial Investigation / SS040/FT008 Pilot Study Report
- PBR Expected Endpoint: Revised Draft FS
- ORC Starting Task:
 - Finalize FS
- ORC Endpoint: Achieve RA-O (Year 7) and continue RA-O through contract



BOMARC Site Location



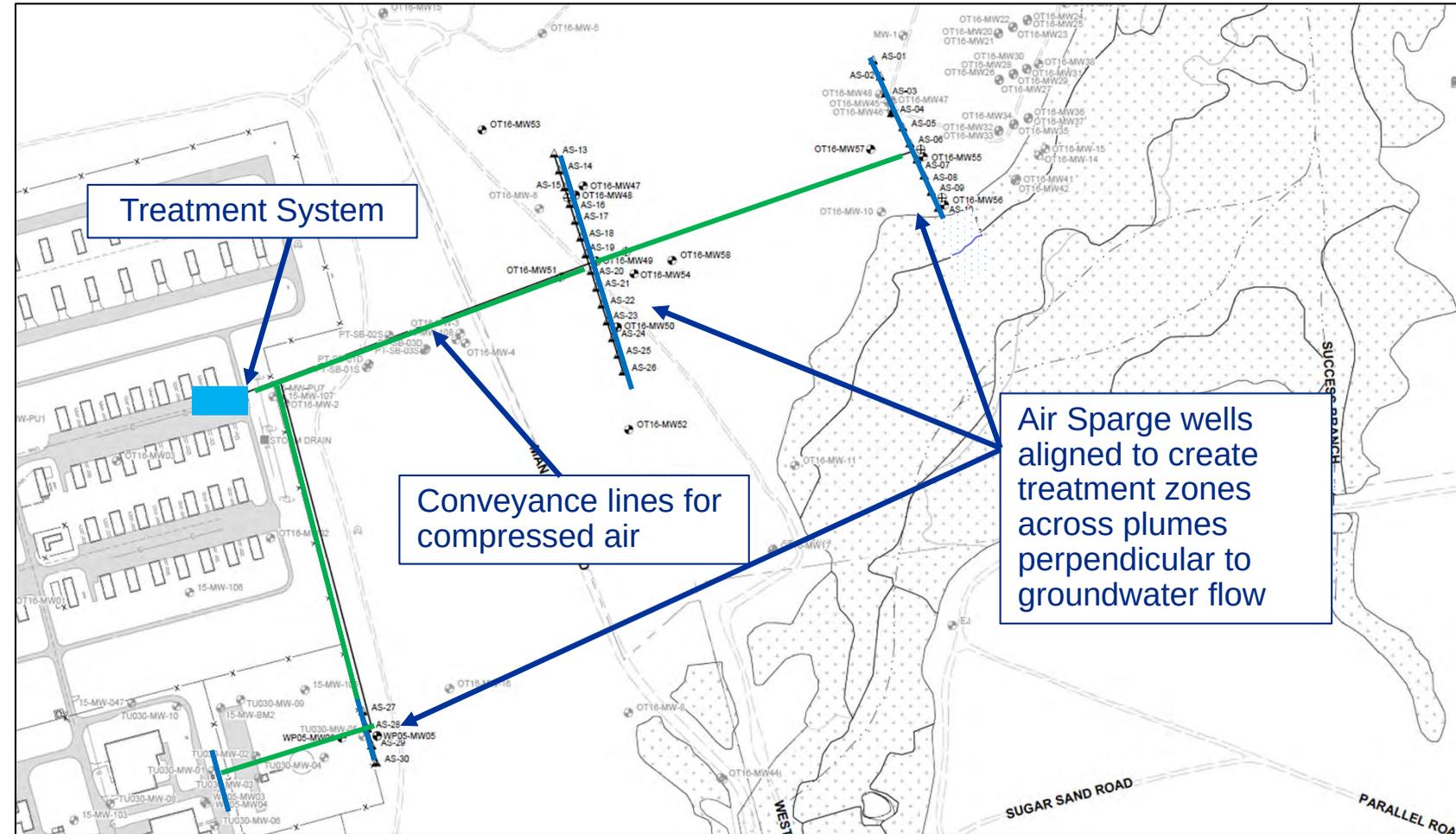


BOMARC – Remedial Action



BOMARC REMEDY

- Selected remedy is Air Sparge (AS) of both plumes
- Duration is expected to be greater than 50 years on-site (AF property), but off-site impacts are expected to be addressed within 10 years
- System installed in 2020



“WIN AS ONE”

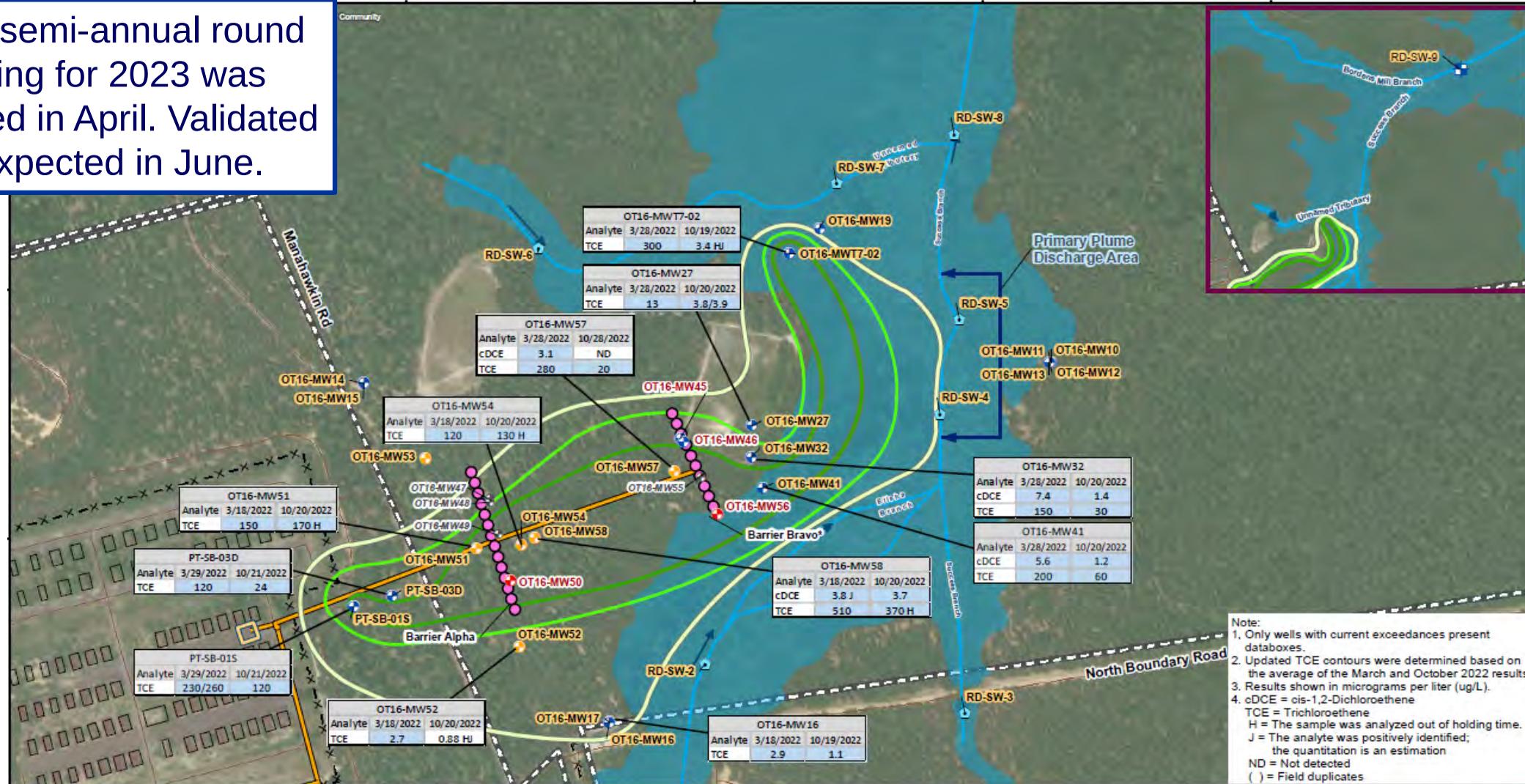


BOMARC

Groundwater Data OT016



The first semi-annual round of sampling for 2023 was conducted in April. Validated data is expected in June.



“WIN AS ONE”



BOMARC Groundwater Data WP005



The first semi-annual round of sampling for 2023 was conducted in April. Validated data is expected in June.



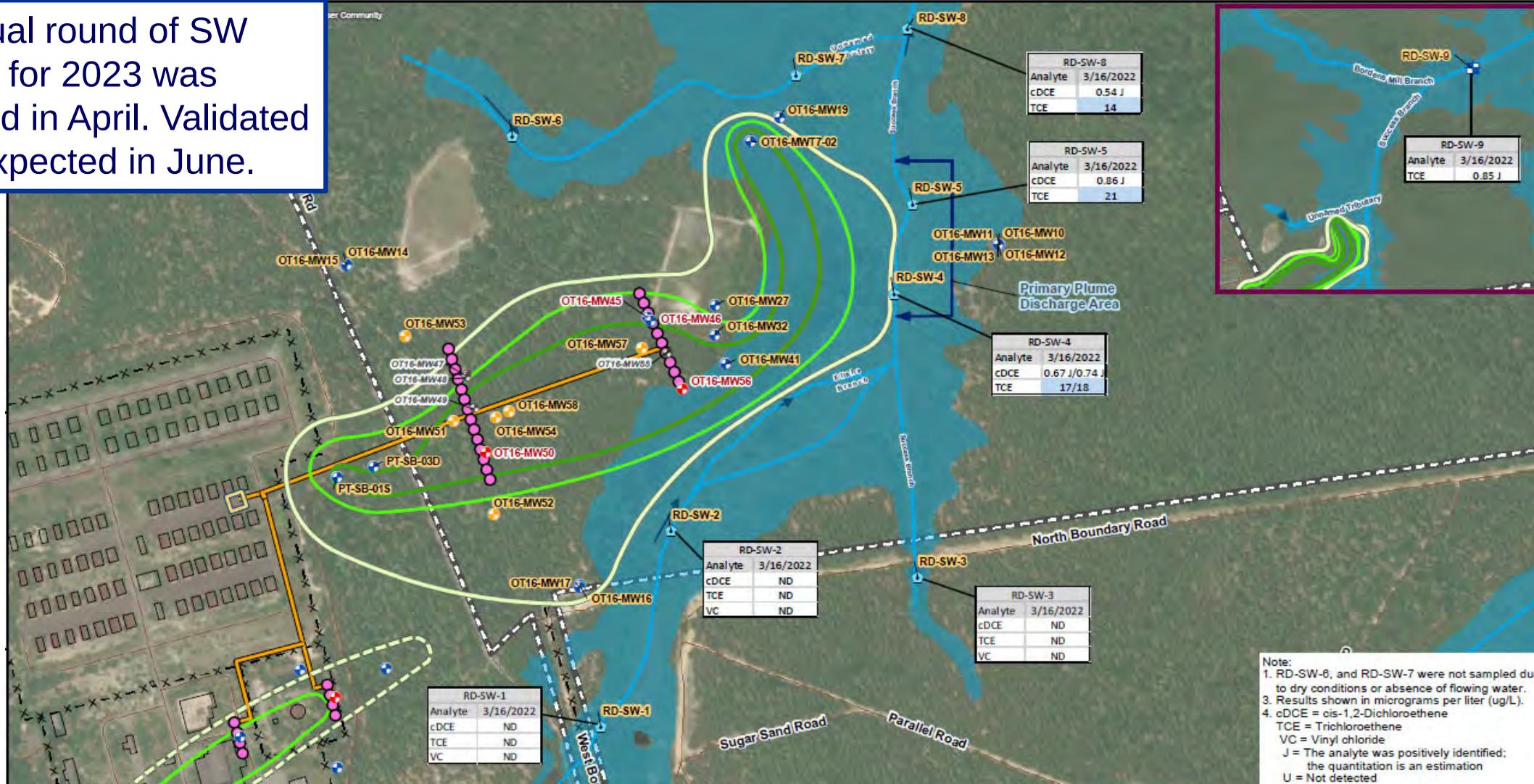
“WIN AS ONE”



BOMARC Surface Water Data



The annual round of SW sampling for 2023 was conducted in April. Validated data is expected in June.



“WIN AS ONE”



Optimized Remediation Contract (ORC)



- Operable Unit: BOMARC (NJDEP-lead, CERCLA, non-NPL)
- Sites: OT016, WP005
- Current CERCLA Phase: RA-O
- Current Document in Review Cycle: Draft McGuire 2022 Inspection, Maintenance, and Monitoring Report (IMMR); Operation & Maintenance Plan
- Most recent document(s) in Administrative Record: Final BOMARC IRACR; Final McGuire 2021 IMMR
- PBR Expected Endpoint: Final McGuire 2023 IMMR; 2024 Tech Memo of performance monitoring
- ORC Starting Task:
 - Continue RA-O: quarterly groundwater and surface water monitoring, air sparge system maintenance, LUC inspections
- ORC Endpoint: Continue RA-O through contract

•CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

•NPL – National Priorities List

•IRACR – Interim Remedial Action Completion Report

•NJDEP – New Jersey Department of Environmental Protection

•LUC – land use controls

•PBR – Performance Based Remediation

•RA-O – Remedial Action Operation

“WIN AS ONE”



Performance Based Remediation Update

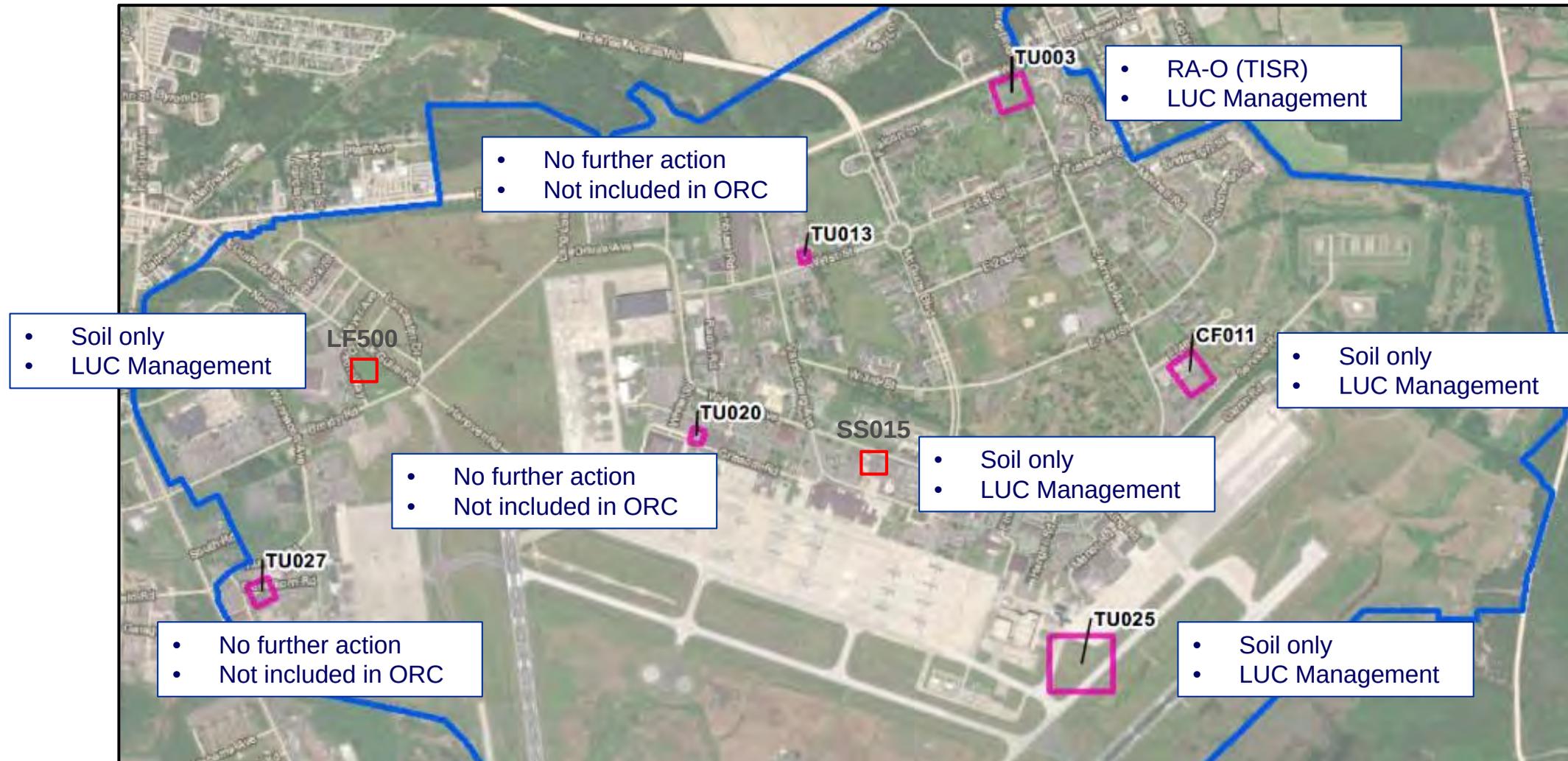


McGuire State Led Sites

"WIN AS ONE"



McGuire Compliance Sites



“WIN AS ONE”



Optimized Remediation Contract (ORC)



- **Operable Unit: Compliance (NJDEP-lead, non-CERCLA, non-NPL)**
- **Sites: CF011, LF500, SS015, TU025**
- **Current CERCLA Phase: RIP (CF011) / RC (LF500, SS015, TU025)**
- **Current Document in Review Cycle: Internal Draft RACR (CF011); Draft McGuire 2022 Inspection, Maintenance, and Monitoring Report (IMMR)**
- **Most recent document(s) in Administrative Record: Final CF011, TU020, TU027 IRACR; Final LF500 Remedial Action Work Plan; Final SS015 & TU029 RACR; Final TU025 RACR; Final McGuire 2021 IMMR**
- **PBR Expected Endpoint: Final CF011 RACR (achieves RC milestone); Final McGuire 2023 IMMR; 2024 Tech Memo of performance monitoring**
- **ORC Starting Task:**
 - **LTM**
- **ORC Endpoint: Continue LTM through contract**



Optimized Remediation Contract (ORC)



- **Operable Unit: Compliance (NJDEP-lead, non-CERCLA, non-NPL)**
- **Sites: TU003**
- **Current CERCLA Phase: RA-C**
- **Current Document in Review Cycle: Internal Draft TU003 IRACR; Draft McGuire 2022 Inspection, Maintenance, and Monitoring Report (IMMR)**
- **Most recent document(s) in Administrative Record: Final TU003 Remedial Action Work Plan Addendum; Final McGuire 2021 IMMR**
- **PBR Expected Endpoint: Final TU003 IRACR (achieve RIP milestone)**
- **ORC Starting Task:**
 - **Continue RA-O: Thermal In-situ Remediation (TISR) system and groundwater sampling**
- **ORC Endpoint: Achieve RC (Year 7) and site closure (Year 8)**

•CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

•NJDEP – New Jersey Department of Environmental Protection

•IRACR – Interim Remedial Action Completion Report

•LTM – Long-term Management

•LUC – Land Use Control

•NPL – National Priorities List

“WIN AS ONE”

•PBR – Performance Based Remediation

•RA-C – Remedial Action Construction

•RC – Response Complete



Optimized Remediation Contract



McGuire Military Munition Response Sites

"WIN AS ONE"



Optimized Remediation Contract (ORC)



- Operable Unit: McGuire MMRP (EPA-lead, CERCLA, NPL)
- Sites: TS875 / XU874
- Current CERCLA Phase: Feasibility Study (FS)
- Current Document in Review Cycle: FS
- Most recent document(s) in Administrative Record (AR): Final Remedial Investigation (AR #2729)
- PBR Expected Endpoint: Not in PBR
- ORC Starting Task:
 - Address Regulatory Comments to and Finalize FS
- ORC Endpoint: Obtain RC and continue LTM through contract



Optimized Remediation Contract

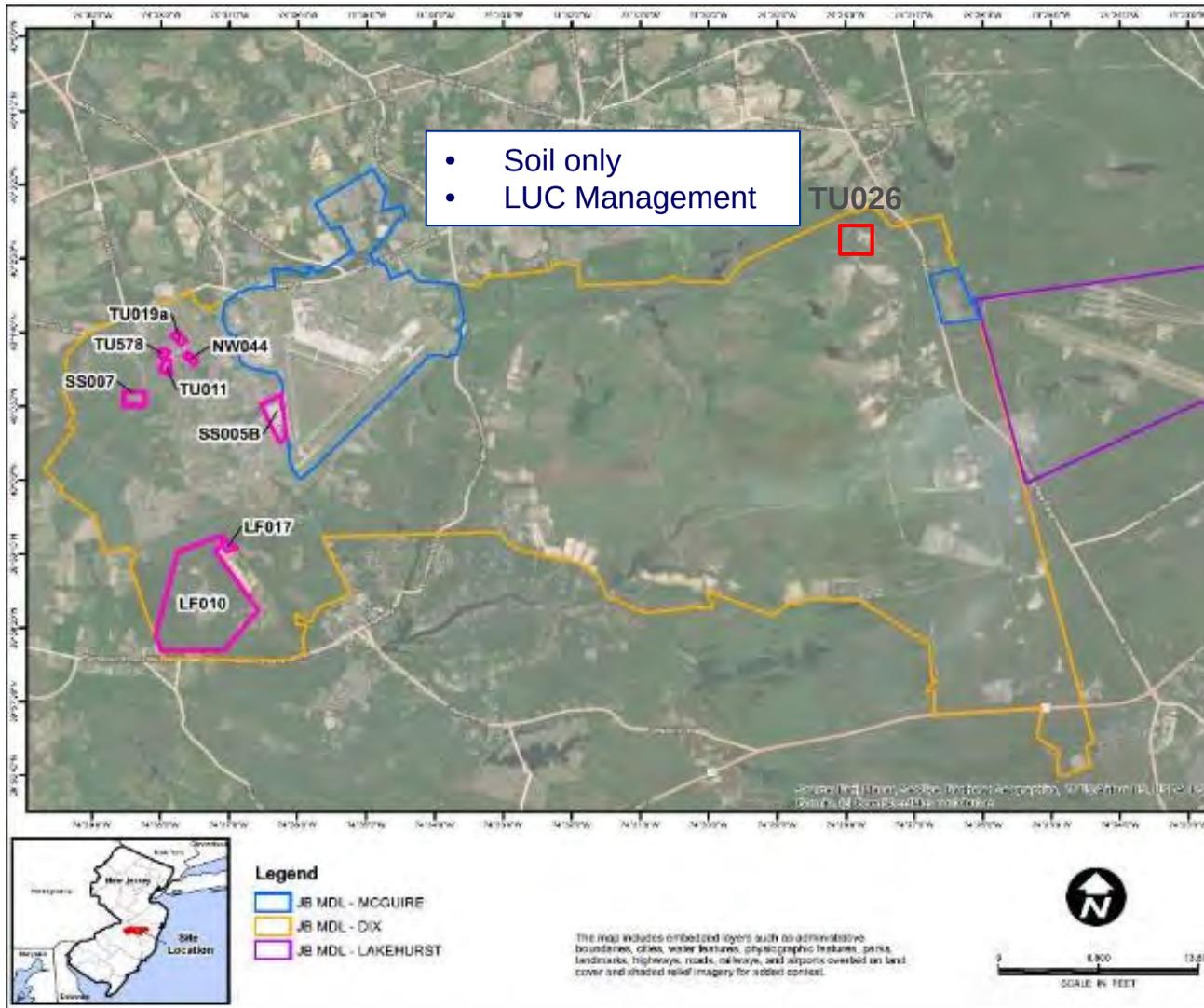


Dix Sites

"WIN AS ONE"



Dix Sites



- TU578 / NW044 / TU019a / SS005B
 - RACR in progress or complete
 - No further action sites
 - Not in ORC contract
- TU011
 - RACR to be proposed to NJDEP for no further action – fuel in groundwater
 - Potentially in ORC (timing)

ORC Next Steps

- LF010
 - LTM groundwater and surface water
 - LUC Management
 - Annual mowing of cap outside solar farm
- LF017 / TU026
 - LUC Management
- SS007
 - RA-O bioaugmentation groundwater
 - LUC Management
 - ESD Dynamic Groundwater Recirculation
- AT024 & DA022 (not shown)
 - No further action Record of Decision

- LTM – Long-term management
- LUC – land use controls
- ORC – Optimized Remediation Contract

- RACR – Remedial Action Completion Report
- RA-O – Remedial Action Operations

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Optimized Remediation Contract (ORC)



- **Operable Unit: Compliance (NJDEP-lead, CERCLA, non-NPL)**
- **Sites: AT024, DA022 (no further action sites)**
- **Current CERCLA Phase: Record of Decision**
- **Current Document in Review Cycle: None**
- **Most recent document(s) in Administrative Record: Final Proposed Plan for Fire Training Area (AT024); Final Proposed Plan Boiler Blowdown Area (DA022)**
- **PBR Expected Endpoint: Not in PBR**
- **ORC Starting Task:**
 - **Record of Decision**
- **ORC Endpoint: Achieve RC/SC (Year 2)**



Optimized Remediation Contract (ORC)



- **Operable Unit: Compliance (NJDEP-lead, CERCLA, non-NPL)**
- **Sites: LF010, LF017**
- **Current CERCLA Phase: RC**
- **Current Document in Review Cycle: Draft Dix 2022 Inspection, Maintenance, and Monitoring Report (IMMR)**
- **Most recent document(s) in Administrative Record: Final Dix 2021 IMMR**
- **PBR Expected Endpoint: Final Dix 2023 IMMR**
- **ORC Starting Task:**
 - **LTM**
- **ORC Endpoint: Continue LTM through contract**



Optimized Remediation Contract (ORC)



- **Operable Unit: Compliance (NJDEP-lead, CERCLA, non-NPL)**
- **Sites: SS007**
- **Current CERCLA Phase: RA-O**
- **Current Document in Review Cycle: Draft Dix 2022 Inspection, Maintenance, and Monitoring Report (IMMR) / Draft Explanation of Significant Difference (ESD) with regulator comment**
- **Most recent document(s) in Administrative Record: Final Dix 2021 IMMR**
- **PBR Expected Endpoint: Final Dix 2023 IMMR**
- **ORC Starting Task:**
 - **Continue RA-O: bioaugmentation/Monitored Natural Attenuation**
 - **Finalize ESD: Dynamic Groundwater Recirculation**
 - **ORC Endpoint: Continue RA-O through contract**



Optimized Remediation Contract (ORC)



- **Operable Unit: Compliance (NJDEP-lead, non-CERCLA, non-NPL)**
- **Sites: TU026**
- **Current CERCLA Phase: RC**
- **Current Document in Review Cycle: Draft Dix 2022 Inspection, Maintenance, and Monitoring Report (IMMR)**
- **Most recent document(s) in Administrative Record: Final Dix 2021 IMMR**
- **PBR Expected Endpoint: Final Dix 2023 IMMR**
- **ORC Starting Task:**
 - **LTM**
- **ORC Endpoint: Continue LTM through contract**



Optimized Remediation Contract



Dix

Military Munition Response Sites

"WIN AS ONE"



Optimized Remediation Contract (ORC)



- Operable Unit: Dix MMRP (NJDEP-lead, CERCLA, NPL)
- Sites: FR004
- Current CERCLA Phase: RA-C
- Current Document in Review Cycle: None
- Most recent document(s) in Administrative Record: Final FR004 ROD (Admin Record #W178852)
- PBR Expected Endpoint: Not in PBR; FR004 under separate contract to obtain RC
- ORC Starting Task:
 - Continue LTM
- ORC Endpoint: continue LTM through contract



Optimized Remediation Contract

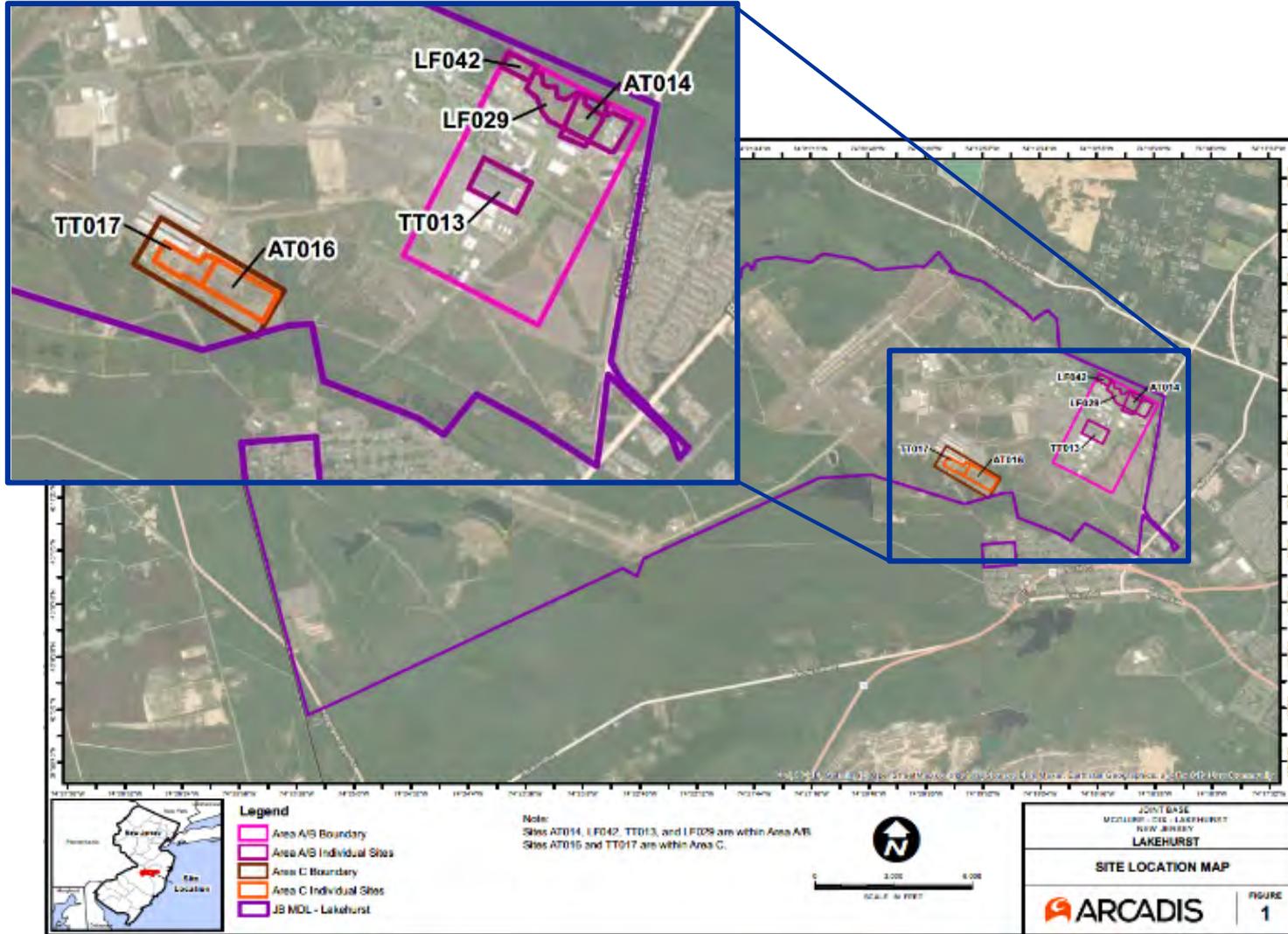


Lakehurst Sites

"WIN AS ONE"



Site Locations: Areas A/B & C



Area A/B

- TT013
 - Active treatment; quarterly groundwater sampling
 - 2 of 4 treatment areas in attainment monitoring
- LF042
 - Active treatment; quarterly groundwater sampling
 - 1 of 2 treatment areas below Remedial Goals
- LF029
 - Remedial Action Completion Report (RACR) submitted to EPA for Response Complete
 - Awaiting EPA approval of Explanation of Significant Differences (ESD)
- AT014:
 - RACR with Air Force. Awaiting EPA approval of ESD

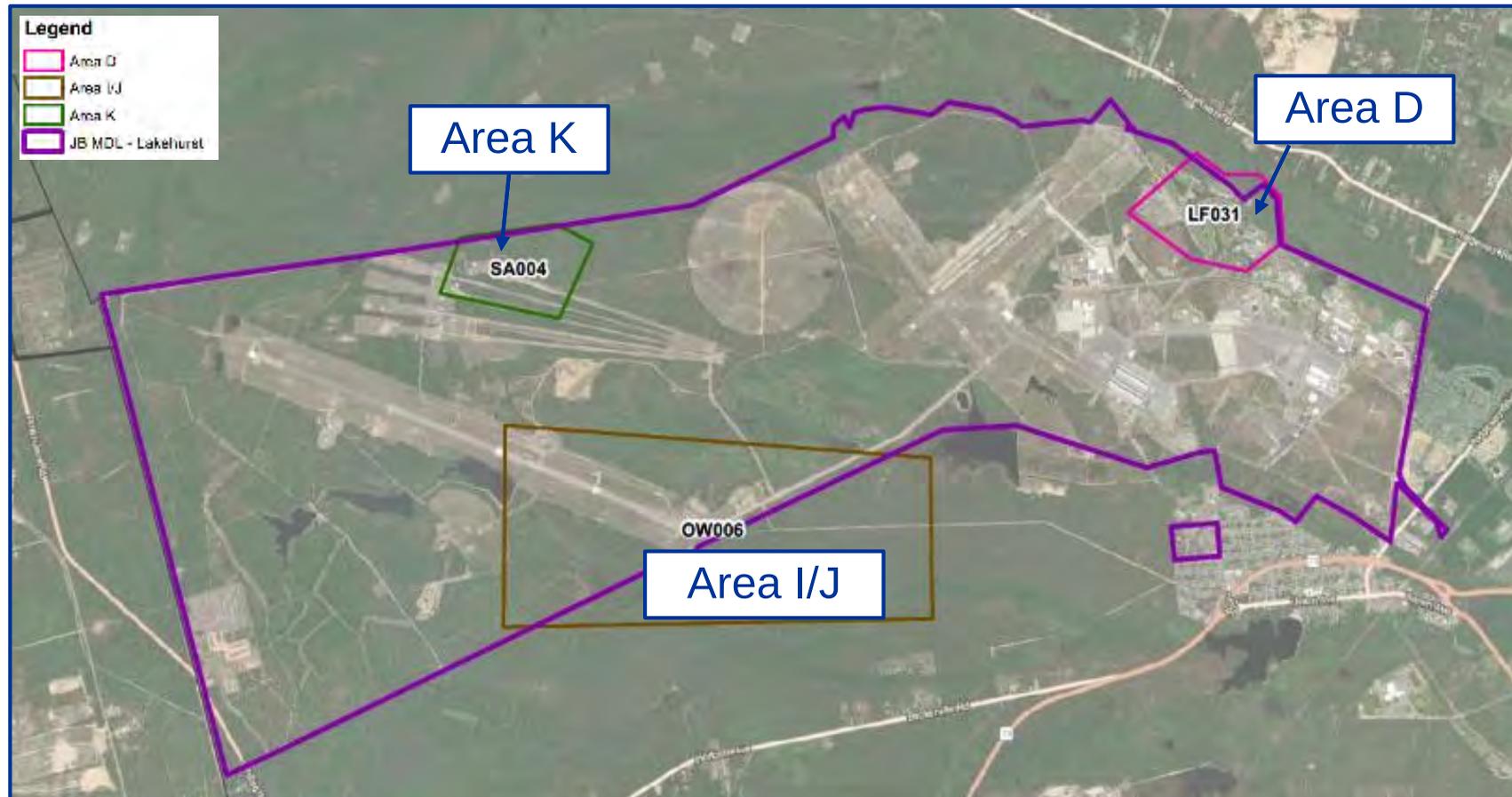
Area C

- AT016
 - RACR with Air Force. Awaiting EPA approval of ESD
- TT017
 - Active treatment; quarterly groundwater sampling

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Areas D, I/J, K Location and Status



- Area D: Annual (fall) MNA groundwater sampling
- Area I/J: Semi-annual (spring and fall) MNA groundwater sampling
- Area K: Annual (fall) MNA groundwater sampling



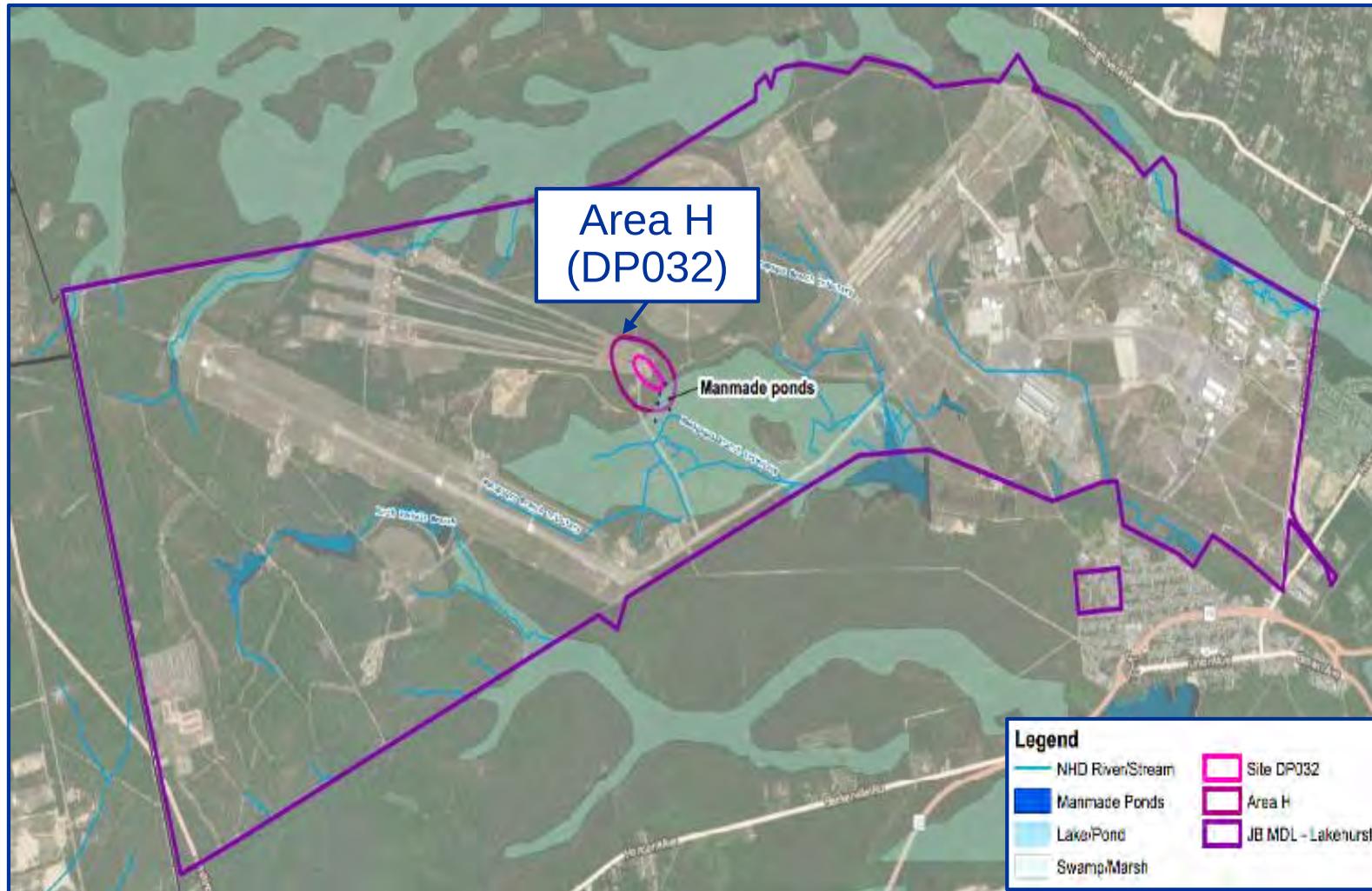
Optimized Remediation Contract (ORC)



- **Operable Unit: Area ABC / D / K (EPA-lead, CERCLA, NPL)**
- **Sites: AT014 (AB) LF029 (AB), LF042 (AB), TT013 (AB), AT016 (C), TT017 (C), LF031 (D), SA004 (K)**
- **Current CERCLA Phase: RA-O**
- **Current Document in Review Cycle: Draft Area ABC / DIJK 2022 Annual Reports; Draft Tech Memos Area D & K (rests contaminants of concern list); Internal Draft AT014 (Area AB) & AT016 (Area C) RACR**
- **Most recent document(s) in Administrative Record: Final ABC 2021 Annual Report; Final Area DIJK 2021 Annual Report**
- **PBR Expected Endpoint: Final Area ABC / DIJK 2023 Annual Reports; Tech Memo Area ABC / DIJK 2024 groundwater data (quarter 1)**
- **ORC Starting Task:**
 - **Continue RA-O: Air sparge, Monitored Natural Attenuation**
 - **AT014 & AT016: finalize RACRs**
- **ORC Endpoint: Achieve Site Closure (Year 5-8)**



Area H Location and Status



- Area H: Semi-annual (spring and fall) Monitored Natural Attenuation groundwater sampling

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Optimized Remediation Contract (ORC)



- **Operable Unit: Area H / IJ (EPA-lead, CERCLA, NPL)**
- **Sites: DP032 (H), OW006 (IJ)**
- **Current CERCLA Phase: RA-O**
- **Current Document in Review Cycle: Draft Area DIJK / H 2022 Annual Reports; Draft Tech Memos Area IJ (rests contaminants of concern list)**
- **Most recent document(s) in Administrative Record: Final Area H (DP032) 2021 Annual Report; Final Area DIJK 2021 Annual Report**
- **PBR Expected Endpoint: Final Area DIJK / H 2023 Annual Reports; Tech Memo Area DIJK / H 2024 groundwater data (quarter 1)**
- **ORC Starting Task:**
 - **Continue RA-O: Air sparge, Monitored Natural Attenuation**
- **ORC Endpoint: Continue RA-O through contract**



Optimized Remediation Contract



Lakehurst Military Munition Response Sites

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Optimized Remediation Contract (ORC)



- Operable Unit: Lakehurst MMRP (EPA-lead, CERCLA, NPL)
- Sites: ZZ001
- Current CERCLA Phase: RA-C
- Current Document in Review Cycle: None
- Most recent document(s) in Administrative Record: Final ZZ001 Record of Decision
- PBR Expected Endpoint: not in PBR; under separate contract to achieve RC
- ORC Starting Task:
 - Surface sweep (Year 6)
- ORC Endpoint: Continue LTM through contract



Optimized Remediation Contract (ORC)



- **Operable Unit: Lakehurst MMRP (EPA-lead, CERCLA, NPL)**
- **Sites: ZZ002 / ZZ006 (no further action sites)**
- **Current CERCLA Phase: Remedial Investigation (RI)**
- **Current Document in Review Cycle: RI**
- **Most recent document(s) in Administrative Record (AR): ZZ002: Final Geophysical Survey; ZZ005/ZZ006 Final Site Inspection Report (AR#W003916) & Final RACR (AR#W004025)**
- **PBR Expected Endpoint: not in PBR; RI being finalized by Air Force; ZZ005 to be combined with ZZ003 and will not be in ORC**
- **ORC Starting Task:**
 - **ZZ002: address regulatory comments and finalize no further action PP**
 - **ZZ006: PP**
- **ORC Endpoint: Obtain RC/SC for ZZ002 and ZZ006**



Optimized Remediation Contract



Basewide / Administrative

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Optimized Remediation Contract (ORC)



Deliverables requiring periodic updates (Most recent document in Administrative Record)

- **Project Management Plan: Year 1, 5**
 - None – contractor to develop
- **Land Use Control Implementation Plan (LUCIP): Year 1-10**
 - Final Environmental Land Use Controls Implementation Plan (LUCIP) 2022 Update
- **Biennial Land Use Control Certification Report: Year 2, 4, 6, 8, 10**
 - Final Biennial Environmental Land Use Control (LUC) Certification and Annual Compliance Summary Report (2020)
- **Annual Site Management Plan – McGuire NPL: Year 1-10**
 - Final Site Management Plan (SMP) Amendment FY2020
- **Biennial Monitoring Well Survey: Year 2, 4, 6, 8, 10**
 - Final Biennial Well Survey Report for 2020
- **Community Involvement Plan: Year 1, 4, 7**
 - Internal Air Force
- **Geographic Information System layers: Year 1-10 “AF-contractor handshake”**
 - None - contractor to develop

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Biennial Well Survey – Scope and Schedule



- **2022 Biennial Well Survey:**
 - JB MDL basewide monitoring well inventory included 1,723 wells
 - Each monitoring well was surveyed for the following information:
 - Well Accessibility
 - Depth to Water and Total Sounded Depth
 - Photo-Ionization Detector Readings
 - Missing Equipment (e.g., Lock and/or Plug)
 - Well Condition/Visible Defects
- Monitoring Well Survey field effort was performed between October 17, 2022 and February 24, 2023.

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Performance Based Remediation Update



Response Complete and Site Closeout Update

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Response Complete/Site Closeouts Status



- **A total of 43 sites have now been RC/SC under the Performance Based Remediation with another 8 planned by the end of the contract in 2024 (including Lakehurst sites)**
 - **RC: 6 sites (5 McGuire, 1 Dix, 0 Lakehurst)**
 - **SC: 37 sites (24 McGuire, 13 Dix, 0 Lakehurst)**

- **A total of 130 sites in the JB MDL environmental program have achieved RC or SC to date**
 - **RC: 8 sites (5 McGuire, 3 Dix, 0 Lakehurst)**
 - **SC: 122 sites (35 McGuire, 52 Dix, 35 Lakehurst)**

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•RC – Response Complete
•SC – Site Closure



Response Complete/Site Closeouts Achieved to Date at McGuire (40)



- OW522 - OWS* 2017/09/20 (SC)
- OW526 - OWS* 2017/09/20 (SC)
- OW511 - OWS* 2018/06/26 (SC)
- OU518 - Oil Water Separator* 2018/06/26 (SC)
- TU022 - UST E187* 2017/09/20 (SC)
- SS017- Contaminated Soil along Conduit* 2017/11/13 (SC)
- AT030 - BOMARC Above Ground Storage Tank* 2017/10/30 (SC)
- TU010 - UST E051* 2018/04/24 (SC)
- DP501 - Dry well at B1907* 2018/04/19 (SC)
- TU078 - UST E078 at Falcon Court East* 2017/09/27 (SC)
- TU080 - UST E080 at Falcon Court East* 2017/09/27 (SC)
- TU087 - UST E087 at Falcon Court East* 2017/09/27 (SC)
- TU088 - UST E088 at Falcon Court East* 2017/09/27 (SC)
- TU089 - UST E089 at Falcon Court East* 2017/09/27 (SC)
- TU090 - UST E090 at Falcon Court East* 2017/09/27 (SC)
- TU026 - Spill Site 26/UST E123* 2019/02/12 (SC)
- TU028 - UST E237* 2019/02/12 (SC)
- TU025 – Former Pump House B* 1808 (RC)
- **TU013 – Spill Site 13/UST E13* 2023/08/31 (RC)**
- **TU020 – UST at Building 2220* 2023/07/05 (RC)**
- TU033 – Fill Stand 3432* 2019/01/23 (SC)
- ST015 – BOMARC MOGAS UST* 2019/07/22 (SC)
- OW503a – POL Area 1838/1840 OWS 8* 2020/07/30 (SC)
- SS502 – NJANG Fuel Oil Spill* 2019/10/23 (SC)
- WP017 - BOMARC Acid NRTL Pit 1991/09/27 (SC)
- PL024 - Spill at Building 1835 2012/10/12 (SC)
- OT012 - BOMARC Transformer Loc 1994/09/21 (SC)
- LP002 - Lead Contamination at B2837 2009/12/08 (SC)
- ST015 - BOMARC MOGAS UST* 2019/07/22 (SC)
- TU034 - 3500 Area 2014/11/24 (SC)
- TU001 - Spill Site/UST E168 2012/10/12 (SC)
- TU014 - UST Building 2415 2012/10/12 (SC)
- TU016 - UST Building 1811 2013/01/09 (SC)
- TU019 - Spill Site/UST E150 2013/01/09 (SC)
- RW001 - BOMARC Missile Accident Site 2009/08/21 (SC)
- TU029 - Building 3446* 2020/06/09 (SC)
- SS015 – Spill at building 1735* 2019/06/27 (RC)
- LF500 – Former building 3408* 2020/10/01 (RC)
- TU018 - Former gas station building 3438* 2020/06/29 (SC)
- TU023 – Pumphouse B* 2020/12/18 (SC)

* Site achieved under Performance Based Remediation contract

“WIN AS ONE”

•RC – Response Complete
•SC – Site Closure



Response Complete/Site Closeouts Achieved to Date at Dix (55)



- AT024 - Fire Training Tanks 2009/09/01 (RC)
- DA022 - Boiler Blowdown Area 2009/06/01 (RC)
- DP032 - PBAS Basin 2009/06/01 (SC)
- IN003 - Resource Recovery Facility 1992/03/01 (SC)
- NW046 - Pathological Landfill 2012/04/06 (SC)
- LF015 - ANC-9 Landfill 2000/06/01 (SC)
- TU968 - Building 5348 (UST)* 2015/09/04 (SC)
- SA018 - ANC-2 Disposal Area* 2018/11/13(SC)
- LF033 - PDO Landfill* 2019/04/18 (SC)
- OW556 - Oil Water Separator 2014/01/22 (SC)
- OW561 - Oil Water Separator 2014/01/22 (SC)
- OW565 - Oil Water Separator 2014/01/22 (SC)
- OW566 - Oil Water Separator 2014/01/22 (SC)
- OW564 - Oil Water Separator 2014/01/22 (SC)
- OW576 - OWS* 2018/07/24 (SC)
- PS006 - Pesticide Control Shop 2011/06/02 (SC)
- SA023 - Paint Shop 2000/06/01 (SC)
- SA027 - Hazardous Waste Storage Area 1997/06/01 (SC)
- SA029 - PCB Transfer Storage Area 2000/06/01 (SC)
- SA030 - MAG-2 Area 1997/06/01 (SC)
- SR008 - Range Impact Area 1997/01/01 (SC)
- SS005 - Spill Sites 1997/01/01 (SC)
- SS028 - Motor Pools 1997/01/01 (SC)
- SS031 - Bivouac 5 Washracks 2000/06/01 (SC)
- SS034 - Transformers 1997/01/01 (SC)
- SS035 - Pesticide Mixing and Storage Area 2014/09/14 (SC)
- ST002 - Old Sewage Treatment Plant 2000/06/01 (SC)
- TT013 - POL Area 2002/08/01 (SC)
- NW043 - Building 4304 2014/11/10 (SC)
- NW045 - Building 5339* 2019/04/18 (SC)

* Site achieved under Performance Based Remediation contract

“WIN AS ONE”

•RC – Response Complete
•SC – Site Closure



Response Complete/Site Closeouts Achieved to Date at Dix (55) (cont'd)



- TU012 - TMP UST 2002/08/01 (SC)
- TU019 – USTs 2014/01/29 (SC)
- TU021 - Area North of Dogwood Lake 2003/08/14 (SC)
- TU971 - Texas Ave Frmr Barracks Area H/O USTs 2014/11/10 (SC)
- TU579 - Building 4201 (Firestone Building)* 2019/04/18 (SC)
- TU924 - Remediation of Building 0199, UST Site* 2019/04/18 (SC)
- TU953 - Remediation of Building 4436, UST Site 2014/01/26 (SC)
- TU963 - Remediation of Building 5216, UST Site 2015/02/23 (SC)
- TU966 - Remediation of Building 5317, UST Site 2015/02/23 (SC)
- TU958 - Remediation of Bldg 5374, UST Site (TMP) 2014/01/26 (SC)
- TU964 - Remediation of Building 9906, UST Site 2015/02/23 (SC)
- TU961 - POL Area 2014/01/26 (SC)
- TU952 - Area 6500 &6700 USTs 2014/01/26 (SC)
- TU937 - Area 5100 USTs 2014/10/29 (SC)
- TU957 - Area 9650 UST 2012/09/25 (SC)
- TU580 - Area 0200 (Colonial Cottages) 2014/10/14 (SC)
- TU581 - Former Barracks Area 2014/11/10 (SC)
- FR004A - Practice Mortar Site 2007/11/02 (SC)
- LF016 – Range Landfill 2021/06/29* (SC)
- SS025 – ARDC Test Site 2021/03/09* (SC)
- NW042 – 0900 Area 2021/06/15* (SC)
- TU969 – Building 5390 2021/06/29* (SC)
- TU970 – Building 6045 2021/06/29* (SC)
- **NW044 – Building 5136* 2023/09/26 (RC)**
- **TU578 – POL Yard* 2023/09/26 (SC)**

* Site achieved under Performance Based Remediation contract

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•RC – Response Complete
•SC – Site Closure



Response Complete/Site Closeouts Achieved to Date at Lakehurst (35)



- AT030 - Recovery Systms Sites Trk 4 Rcvry End 1991/09/30 (SC)
- CS003 - Drainage Dtch @ Rnwy Arrstd Lndng Site 2004/10/05 (SC)
- DA005 - Arrsting Engine RSTS Track 2 Bldg 371 1992/03/01 (SC)
- DA007 - Catapult Test Facility Storage Area 1993/09/27 (SC)
- DA008 – Building 529, Arresting End of Track 1 2005/10/04 (SC)
- DA009 - Hangar 2 Disposal Area (DA) 1993/09/27 (SC)
- DA015 - Disposal Area Near Bldg 562 Prkng Lot 1991/09/30 (SC)
- DA020 - Tetraethyl Lead Disposal Site 1993/09/27 (SC)
- DA021 - Jet Car Maintenance Shop 1992/03/01 (SC)
- DA023 - Inactive DA at Bldg 524 1991/09/30 (SC)
- DA025 - Test Department DA 1993/09/27 (SC)
- DA026 - Contractor DA North of Bldg 337 1991/09/30 (SC)
- DA027 - Recovery Systems Test Sites 1991/09/30 (SC)
- DA028 - Westfield Hangar Area 2004/10/05 (SC)
- DA034 - Parachute Jump Circle 2004/10/05 (SC)
- DA035 - Helicopter Defueling Area 1993/06/21 (SC)
- DA036 - Former Hangar 1 Liq Waste DA 1993/09/27 (SC)
- DA037 - Former Fuel Disposal & Drum Storage Area 1993/09/27 (SC)
- DA038 - Oil Skimming & Sewage DA 1993/06/21 (SC)
- DA040 - Soil Stabilization Field Test Site 1991/09/30 (SC)
- DA044 - PCB Storage and Test Areas 1991/12/31(SC)
- DA045 - Area adjacent to AF BOMARC Site 1991/09/30(SC)
- DP018 - Naval Exchange Gas Station 1991/09/30 (SC)
- DP033 - Refueler Repair Shop Bldg 345 1993/09/27 (SC)
- SA010 - MOGAS Station 2004/10/05 (SC)
- SA011 - Hangar 5 Storage Area 1993/06/21 (SC)
- SA019 - Sats Catapult (7401 Test Site) 1992/01/03 (SC)
- SA022 - Jet Blast Deflector 1993/09/27 (SC)
- SA024 - Catapult Test Site 7419 1993/09/27 (SC)
- SA043 - Advanced Underground Warfare Storage B343 2004/010/05 (SC)
- SS001 - Blimp Crash Site 2004/09/01 (SC)
- SS002 - Experimental Site at RSTS Track 2 1993/06/21 (SC)
- SS039 - POL Disposal Site 1993/09/27 (SC)
- TT012 - Abandoned Fuel Storage Facilty 141 1993/09/27 (SC)
- XU041 - Ordnance Impact Area 2004/09/01 (SC)

* Site achieved under Performance Based Remediation contract

“WIN AS ONE”

•RC – Response Complete
•SC – Site Closure



Site Closures Achieved Since 2014 (37)



DIX

- TU968 - Building 5348 (UST)
- SA018 - ANC-2 Disposal Area
- LF033 – PDO Landfill
- OW576 - Oil Water Separator
- NW045 – Building 5339
- TU579 – Firestone Building
- TU924 – Building 0199 UST
- LF016 – Range Landfill (SC June 2021)
- SS025- ARDC Test Site
- NW042 – 900 Area
- TU969 – Building 5390
- TU970 – Building 6045
- TU578 – POL 3164

LAKEHURST

- None

McGUIRE

- OW522 - OWS
- OW526 - OWS
- OW511 - OWS
- OU518 - OWS
- TU022 – UST E187

McGUIRE (cont.)

- SS017- Contaminated Soil along Conduit
- AT030 - BOMARC Above Ground Storage Tank
- TU010 - UST E051
- DP501 - Dry well at B1907
- TU078 - Underground Storage Tank E078 at Falcon Court East
- TU080 - Underground Storage Tank E080 at Falcon Court East
- TU087 - Underground Storage Tank E087 at Falcon Court East
- TU088 - Underground Storage Tank E088 at Falcon Court East
- TU089 - Underground Storage Tank E089 at Falcon Court East
- TU090 - Underground Storage Tank E090 at Falcon Court East
- TU026 - Spill Site 26/UST E123
- TU028 - Underground Storage Tank E237
- TU033 – Fill Stand 3423
- ST015 – BOMARC MOGAS UST
- OW503a – POL Area 1838/1840 OWS 8
- SS502 – NJANG Fuel Oil Spill Site
- TU029 – Building 3446
- TU018– Former gas station building 3438
- TU023 – RACR approved ready for closure

“WIN AS ONE”



Performance Based Remediation Update



Questions?

"WIN AS ONE"