

Air Force Installation & Mission Support Center



Wurtsmith Restoration Advisory Board Meeting

Steven Willis
AFCEC/CIBC
16 Aug 2023

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Classification



The classification of the brief is unclassified



Agenda



- **Welcome, introductions, and ground rules**
- **Restoration Advisory Board (RAB) member updates**
- **RAB business update**
- **Interim actions update**
- **Remedial investigation (RI) and Alert Aircraft Area interim remedial action (IRA) update**
- **Former Wurtsmith Air Force Base (AFB) Critical Process Analysis (CPA)**
- **RAB member questions**
- **Public comment**
- **Conclusion – RAB Co-Chairs' closing remarks**



Checklist for Virtual Participation



- ✓ If you prefer to join audio by phone, please dial the call-in number and enter the access code to enter the meeting
- ✓ Phone unmute instructions - *5 to raise your hand, *6 to unmute/mute
- ✓ RAB Members – mute when not speaking
- ✓ Use “raise hand” to raise your hand
- ✓ RAB Coordinator will unmute your mic when it’s your turn to speak
- ✓ To enable closed captions for language support, click “more” – “language and speech” – “turn on live captions”
- ✓ Use Chat for questions
- ✓ Contact the RAB Coordinator with access questions amy.rauser@wsp.com

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Site Map



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RAB Updates

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Public Comment



- **Congressman Bergman statement**

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- **Heidi Hulst, Cristina Harvey, Leigh-Ann Fabianke, and Tim Sueltenfuss from the Office of the Deputy Assistant Secretary of Defense (Environment and Energy Resilience) attended May 2023 RAB meeting**
 - **Interviewed some community members and stakeholders. Questionnaire available for others to provide feedback**
 - **Based on the initial 6 installation visits, a report will be posted to the website below on 21 Aug 2023**
 - **Go to <https://www.acq.osd.mil/eie/eer/ecc/pfas/po/index.html> (DoD PFAS website, Public Outreach page)**
 - **Click the bar labeled Environmental Cleanup Communication & Outreach Initiative (ECCOI)**
 - **See links for About ECCOI, ECCOI Flyer, and Community Member Communication Questionnaire**
 - **Click the Community Member Communication Questionnaire link to begin**



Air Force Update



- **Honorable Brendan Owens, Assistant Secretary of Defense (Energy, Installations & Environment) conducted roundtable meeting in Oscoda on 23 May 2023 with stakeholders and community members**
- **Air Force hosted an in-person technical session on 15 August 2023 to discuss questions submitted by the RAB/community members**
- **Virtual RAB action item review meeting planned for 12 Sep 2023 at 6:00 pm eastern time. Meeting open to RAB members and public**
- **RAB attendee list will be posted to RAB website beginning with this meeting.**

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MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

EGLE Updates

Amy Handley

Project Manager

RRD, Superfund Section

Handleya@michigan.gov | 517-898-3356

Recent EGLE Activities

- Work with DNR and Air Force on 3 Pipes Pilot study
- Submitted Purdue data for Clark's Marsh to Air Force
- Reviewed and commented on the draft PFAS RI QAPP Addendum
- Reviewed and commented on the Wurtsmith Vapor Intrusion (VI) RI Immediate Sampling Work Plan/Field Activities
- Aircraft Alert Area (AAA) IRA substantive requirements document (SRD) discussions on-going
 - RRD, WRD, AG, and AF
- Meetings with Air Force to discuss field work progress
- Reviewed and commented on AAA IRA proposed plan
 - Also sent to WRD and AG for review
- Reviewed 3 Pipes Pilot Study work plan
 - Also sent to DNR and WRD for review

Upcoming Activities

- SPP meeting
- PFAS RI QAPP Addendum RTCs from Air Force
- Data review for PFAS RI VAS sampling
- Additional documents for review
 - VI RI QAPP, AAA QAPP, MMRP QAPP, 5-year Review, Annual Report
- Field oversight by AECOM ongoing, QA sampling ongoing
- Critical process analysis
 - Specialty contractor, Air Force subject matter experts, and EGLE all involved



RAB Member Updates



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RAB Business

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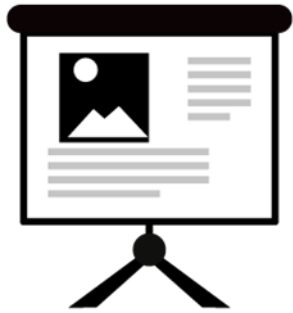


■ Action Items

- List distributed to RAB prior to meeting
- Virtual action item review meeting planned for 12 Sep at 6:00 pm eastern time, sign up sheet available for non-RAB members to participate
- Status since last RAB meeting
 - Opened: 121 thru 127 (7 total)
 - Closed: 112
 - Ongoing: 87, 88, 92, 96, 99, 100, 101, 102, and 104 thru 120 (27 total)



Presentation:



Interim Actions Update

Justin Gal, WSP

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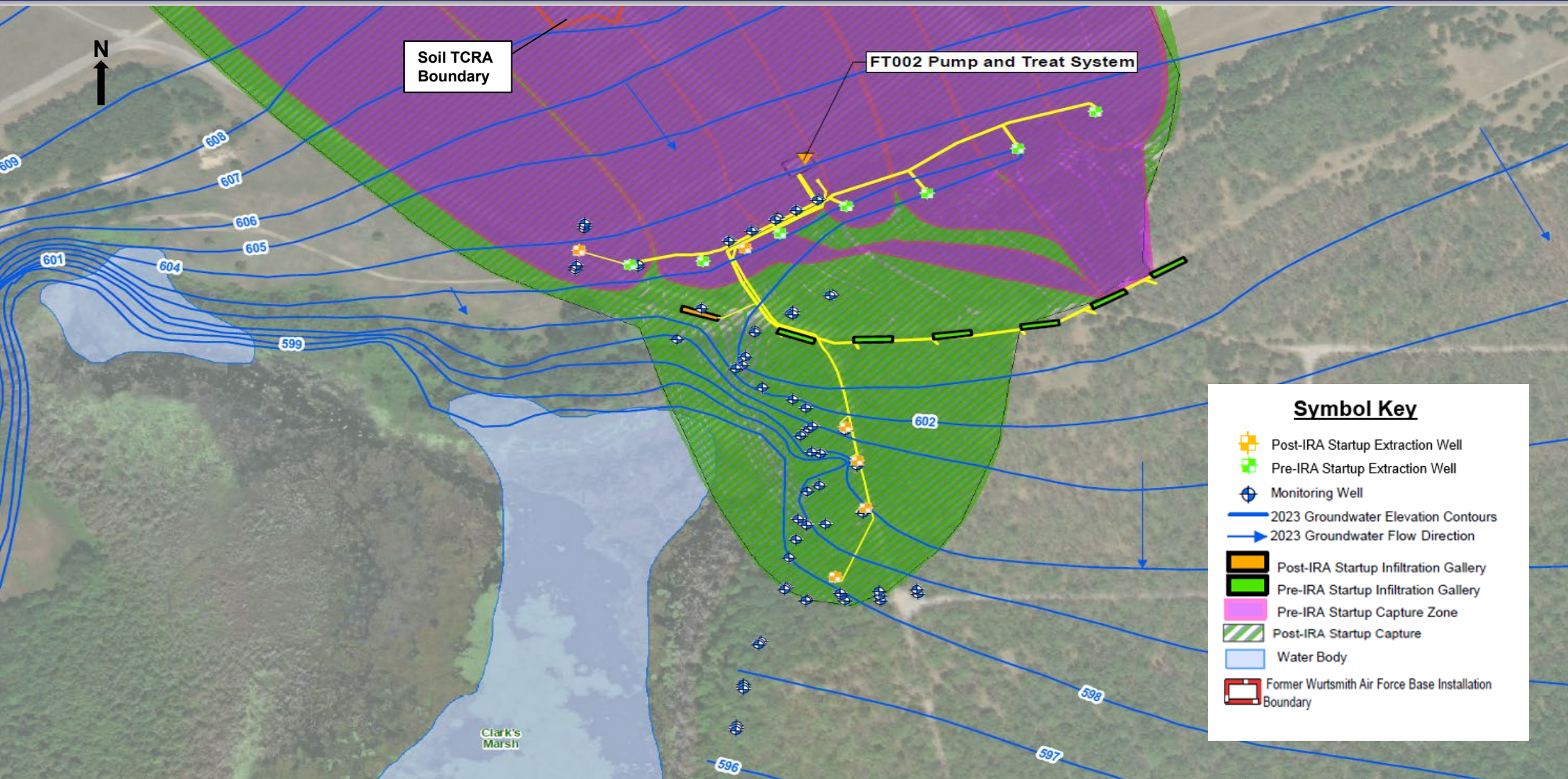
Wurtsmith Base Wide Map



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FT002 Interim Remedial Action – Groundwater Capture



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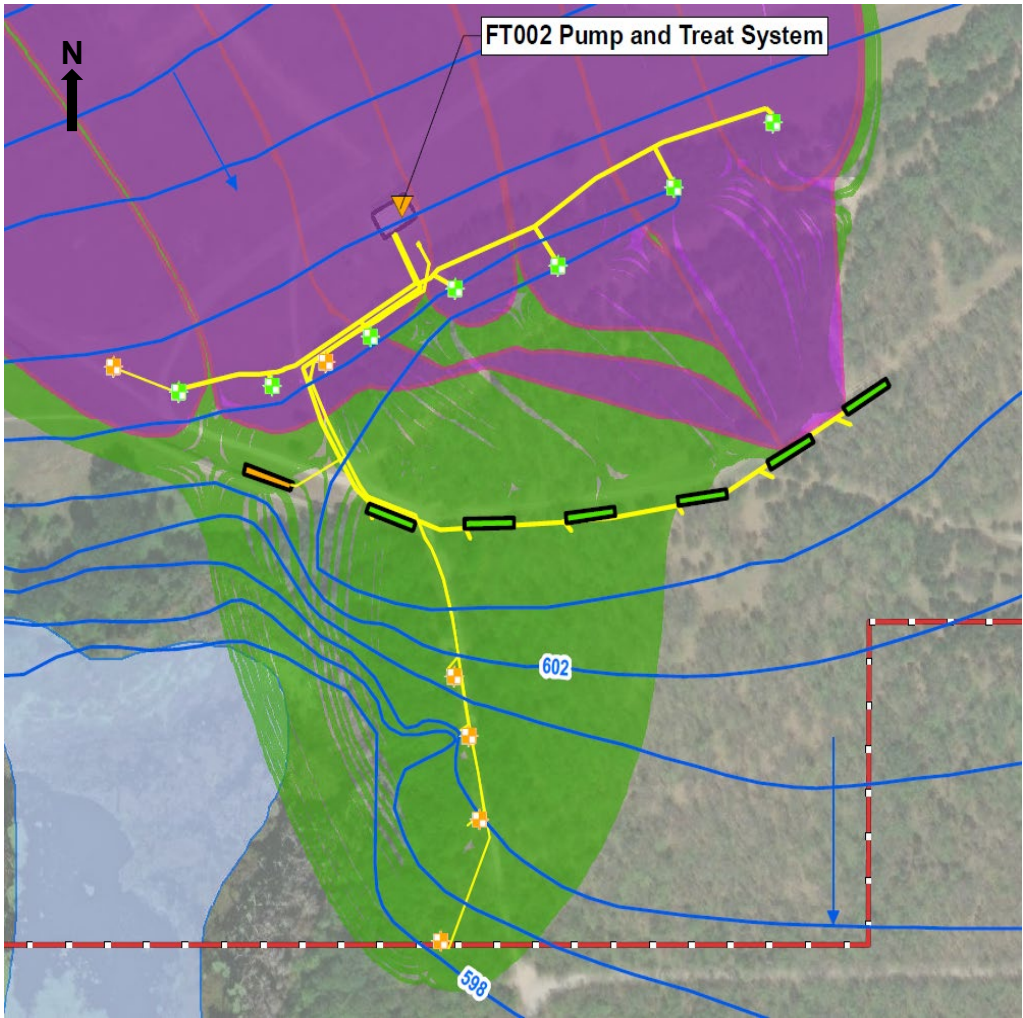
FT002 Interim Remedial Action – System Performance



Hydraulic Performance

Extraction Well ID	Extraction Well Pumping Rates Gallons per Minute			
	Pre-IRA Startup ¹		Post-IRA Startup ²	
	Jul 2022	Target Flow Rates	Mar 2023	Target Flow Rates
FT02-PW1	46.1	39.8 - 48.6	30.5	28.1 - 34.3
FT02-PW2	36.0	38.8 - 47.4	22.5	21.1 - 25.7
FT02-PW3	36.9	30.4 - 37.2	22.3	21.1 - 25.7
FT02-PW4	26.9	25.7 - 31.5	32.6	30.4 - 37.2
FT02-PW5	24.9	25.7 - 31.5	35.0	32.8 - 40.0
FT02-PW6	23.5	23.4 - 28.6	36.0	32.8 - 40.0
FT02-PW7	33.6	30.4 - 37.2	33.3	30.4 - 37.2
FT02-PW8	--	--	33.5	30.4 - 37.2
FT02-PW9	--	--	32.9	30.4 - 37.2
FT02-PW10	--	--	30.0	28.1 - 34.3
FT02-PW11	--	--	19.9	18.7 - 22.9
FT02-PW12	--	--	20.0	18.7 - 22.9
FT02-PW13	--	--	27.8	25.7 - 31.5
Total	227.9	214.3 - 261.9	376.3	348.7 - 426.1

1 – TCRA FT002 System Start Date: June 2015.
2 – IRA Start Date: 16 August 2022.



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FT002 Interim Remedial Action – Mass Removal



PFOS Mass Removed

Year	Total Volume Treated (gallons)	Mass Removed (lbs)
2015	65,766,680	4.40
2016	113,873,868	6.18
2017	116,454,302	3.85
2018	132,127,884	5.86
2019	109,186,442	5.92
2020	117,201,414	5.74
2021	113,280,780	4.79
Jan 22-Aug 22	64,243,480	2.00
Pre-IRA Startup Total	832,134,850	38.74
Post IRA Startup Aug 22-Apr 23	141,662,100	2.72
Combined Total	973,796,950	41.45

PFOS = perfluorooctane sulfonate

PFOA Mass Removed

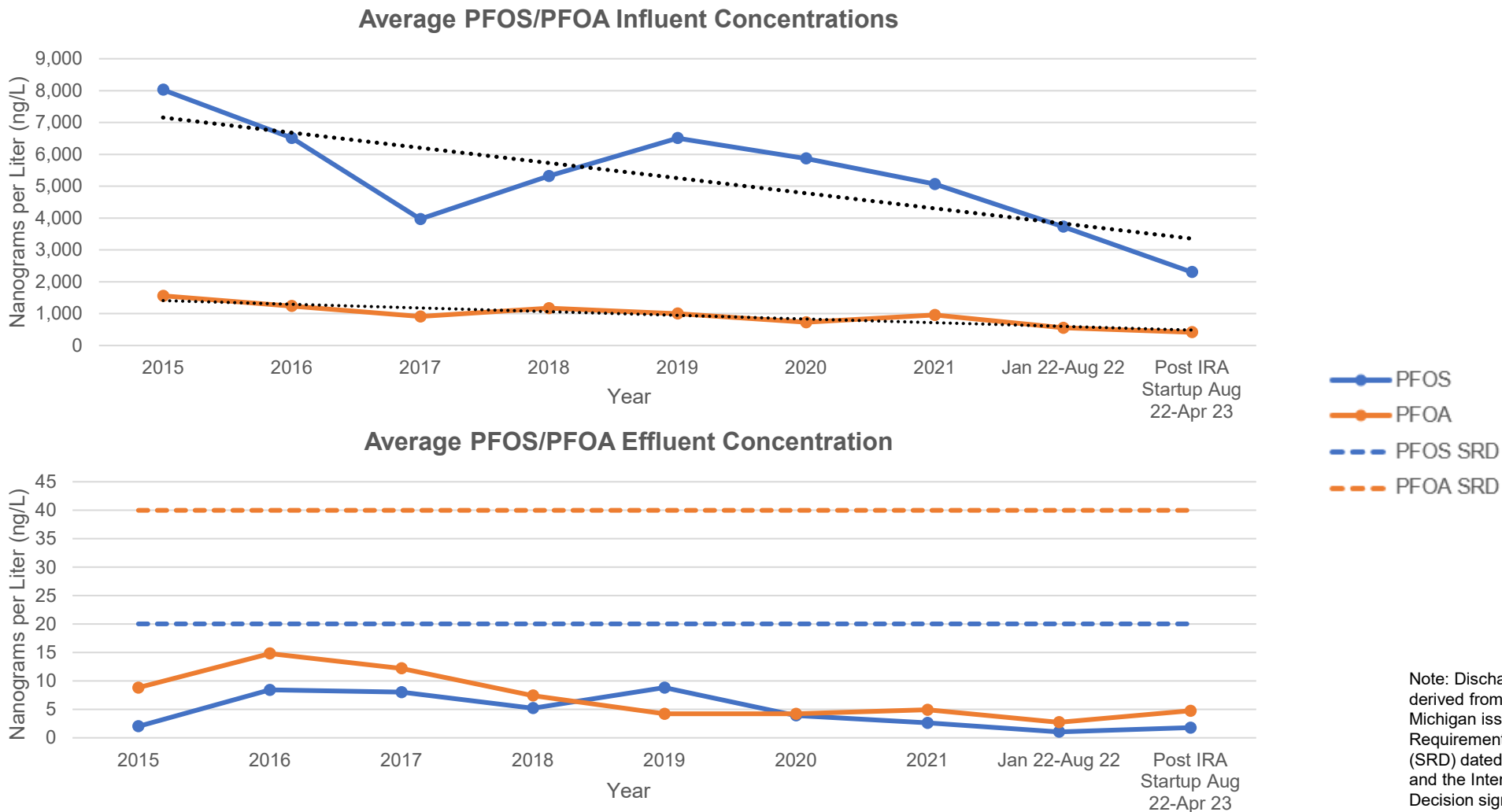
Year	Total Volume Treated (gallons)	Mass Removed (lbs)
2015	65,766,680	0.85
2016	113,873,868	1.17
2017	116,454,302	0.87
2018	132,127,884	1.28
2019	109,186,442	0.91
2020	117,201,414	0.71
2021	113,280,780	0.90
Jan 22-Aug 22	64,243,480	0.30
Pre-IRA Startup Total	832,134,850	6.99
Post IRA Startup Aug 22-Apr 23	141,662,100	0.49
Combined Total	793,796,950	7.47

PFOA = perfluorooctanoic acid

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FT002 Interim Remedial Action – Concentration Trend



Note: Discharge limitation derived from the State of Michigan issued Substantive Requirements Document (SRD) dated 15 April 2016 and the Interim Record of Decision signed 15 October 2021.

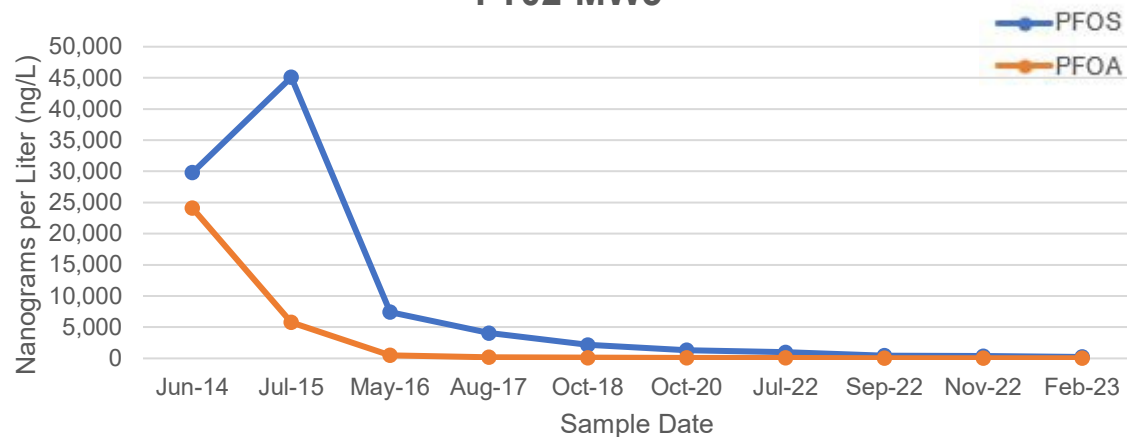
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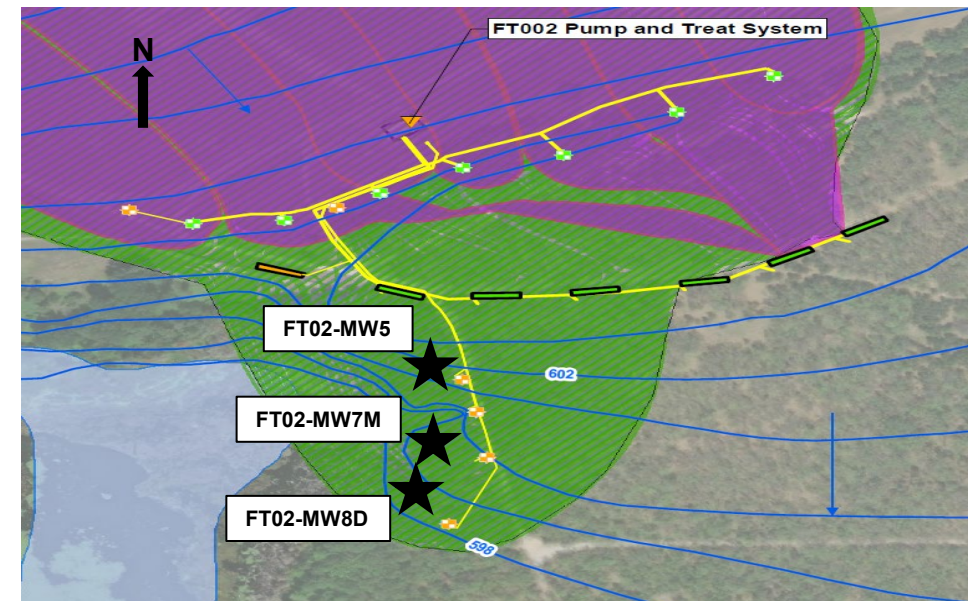
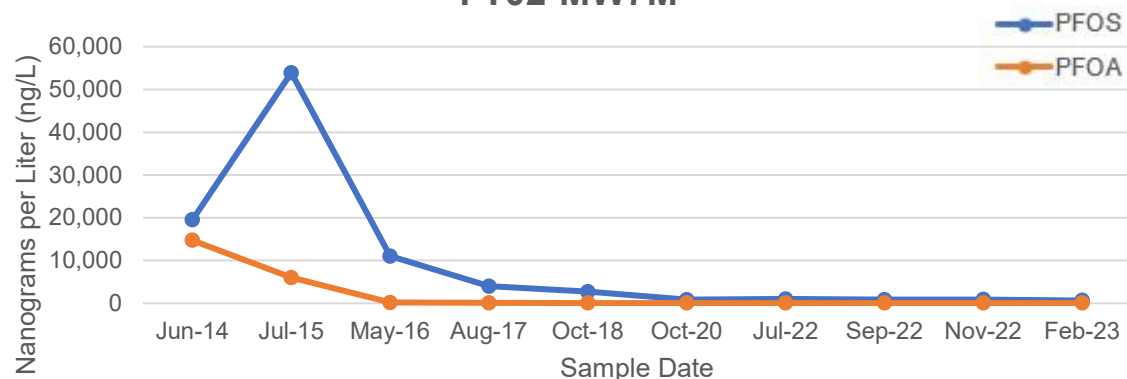
FT002 Interim Remedial Action – Downgradient Monitoring



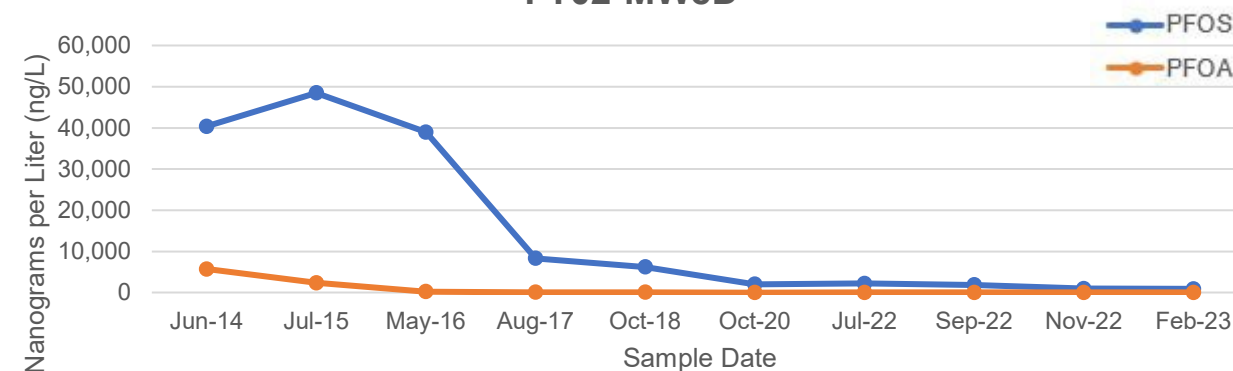
FT02-MW5



FT02-MW7M



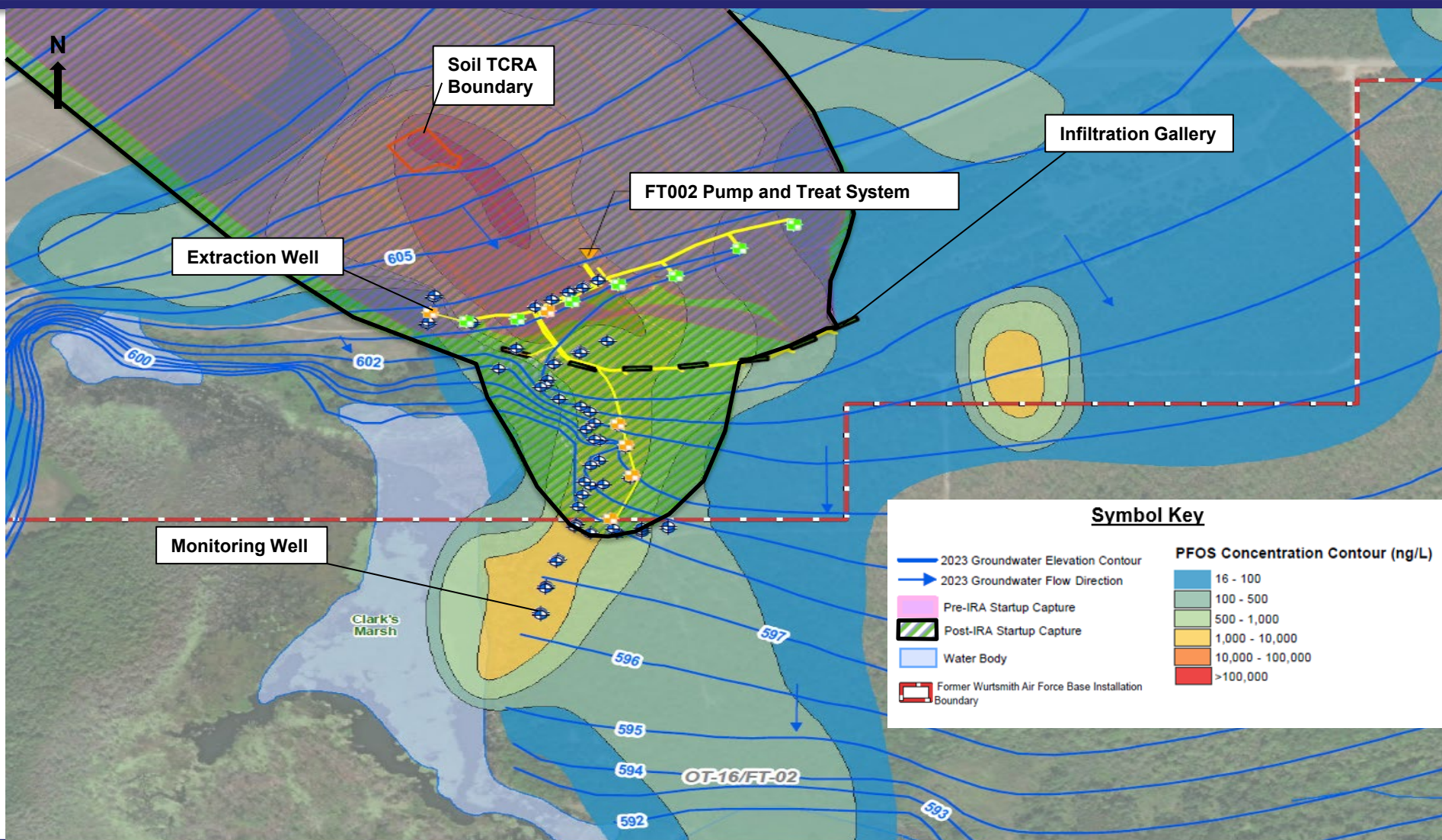
FT02-MW8D



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FT002 Interim Remedial Action – PFOS Concentration Map



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Van Etten Lake at Ken Ratliff Memorial Park (VEL) IRAs – Groundwater Capture



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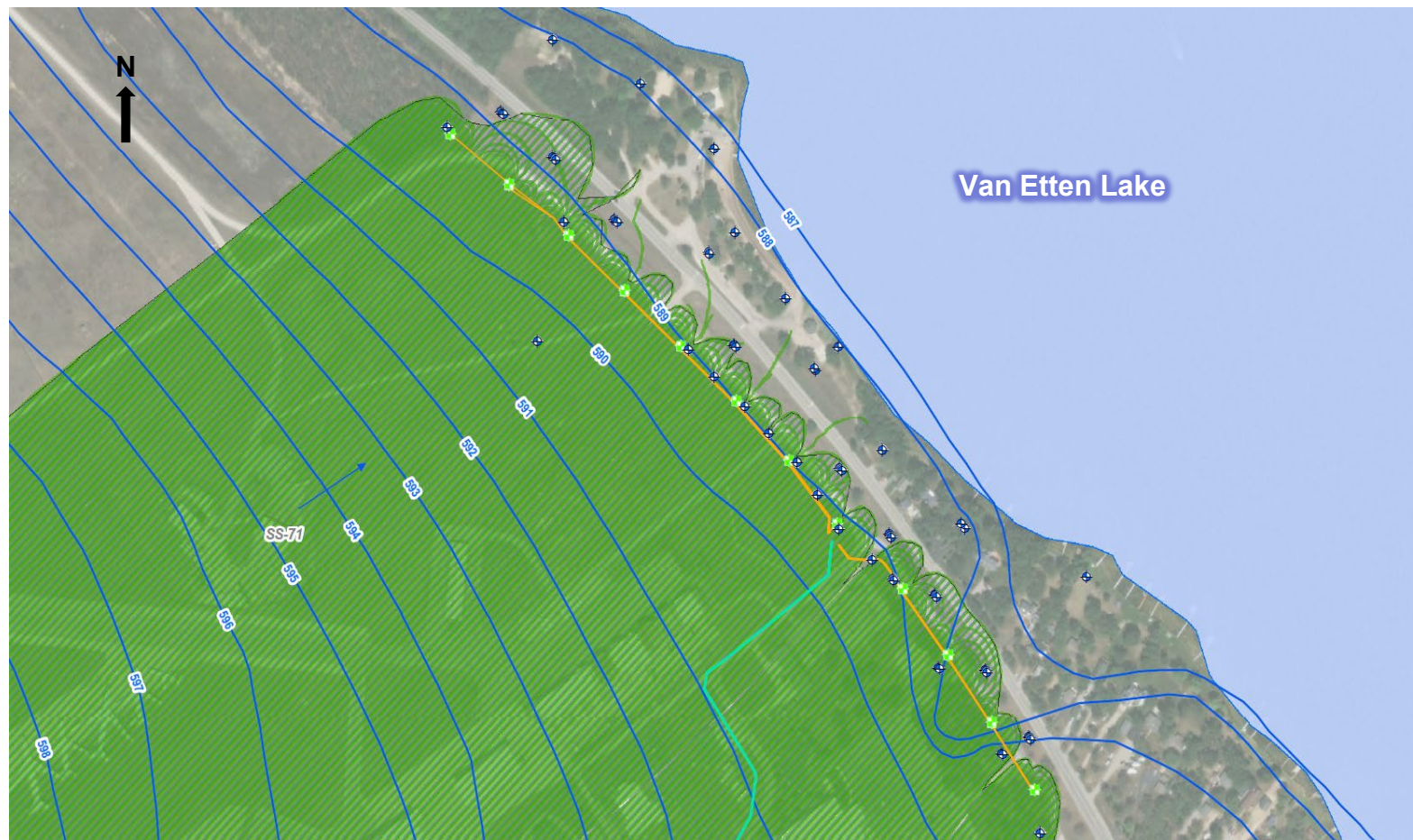


VEL IRA – System Performance

Hydraulic Performance

Extraction Well ID	Extraction Well Pumping Rates Gallons per Minute	
	Post-System Startup Feb 2023 ¹	Target Flow Rates
CAWUREW001	49.1	44.1 - 53.9
CAWUREW002	51.1	45.9 - 56.1
CAWUREW003	47.1	42.3 - 51.7
CAWUREW004	46.9	42.3 - 51.7
CAWUREW005	42.8	37.8 - 46.2
CAWUREW006	35.8	32.4 - 39.6
CAWUREW007	38.0	34.2 - 41.8
CAWUREW008	37.1	33.3 - 40.7
CAWUREW009	38.3	35.1 - 42.9
CAWUREW010	38.5	34.2 - 41.8
CAWUREW011	28.0	26.1 - 31.9
CAWUREW012	35.9	32.4 - 39.6
Total	488.6	440.1 - 537.9

1 –IRA Start Date: 17 October 2022.



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VEL IRA – Mass Removal

PFOS Mass Removed

Month	Total Volume Treated (gallons)	Mass Removed (lbs)
Oct-22	9,243,600	0.14
Nov-22	20,208,300	0.31
Dec-22	20,176,200	0.37
Jan-23	21,217,300	0.33
Feb-23	19,942,900	0.25
Mar-23	22,318,100	0.33
Apr-23	21,859,000	0.33
Total	134,965,400	2.07

PFOS = perfluorooctane sulfonate

PFOA Mass Removed

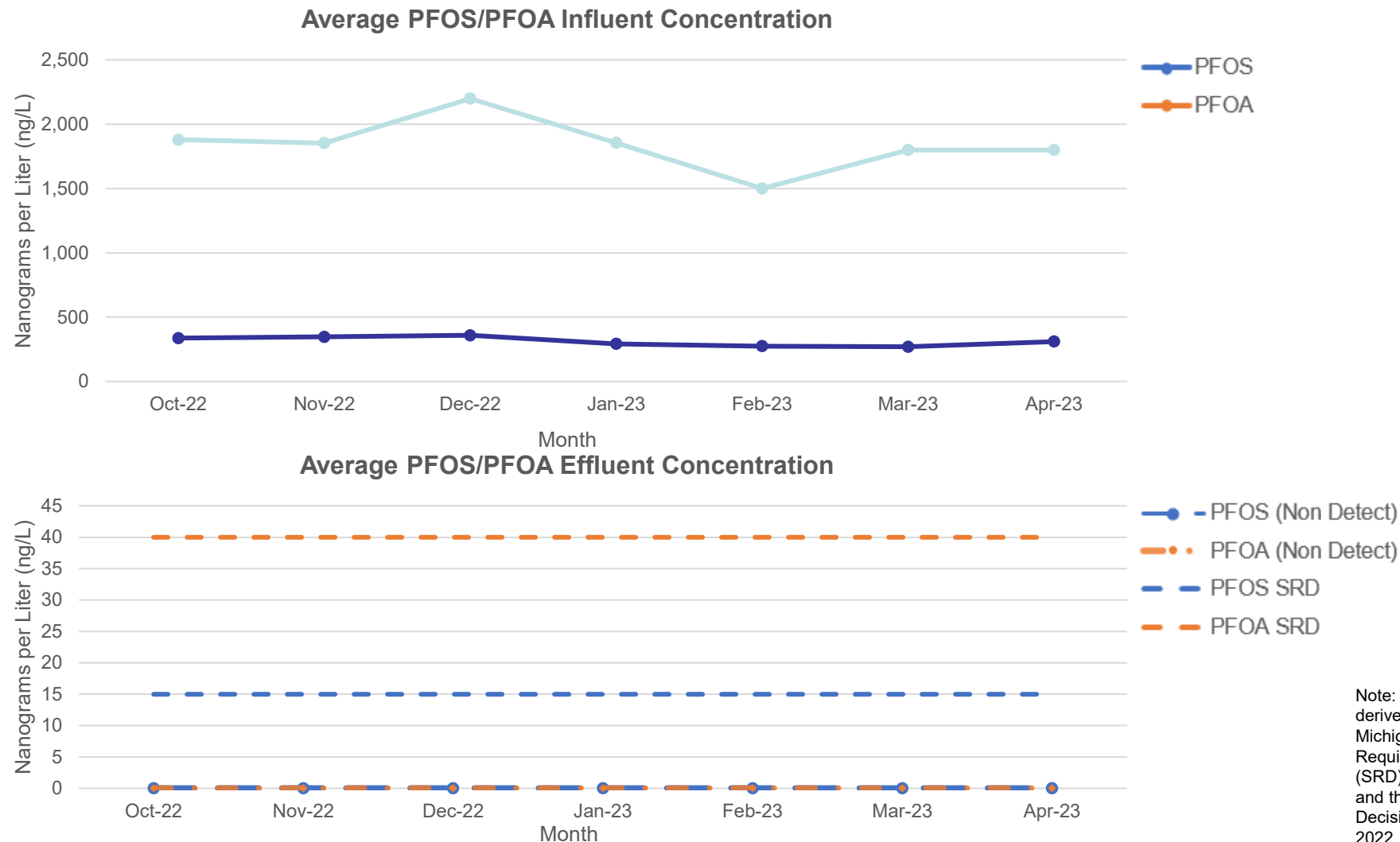
Month	Total Volume Treated (gallons)	Mass Removed (lbs)
Oct-22	9,243,600	0.03
Nov-22	20,208,300	0.06
Dec-22	20,176,200	0.06
Jan-23	21,217,300	0.05
Feb-23	19,942,900	0.05
Mar-23	22,318,100	0.05
Apr-23	21,859,000	0.06
Total	90,788,300	0.35

PFOA = perfluorooctanoic acid

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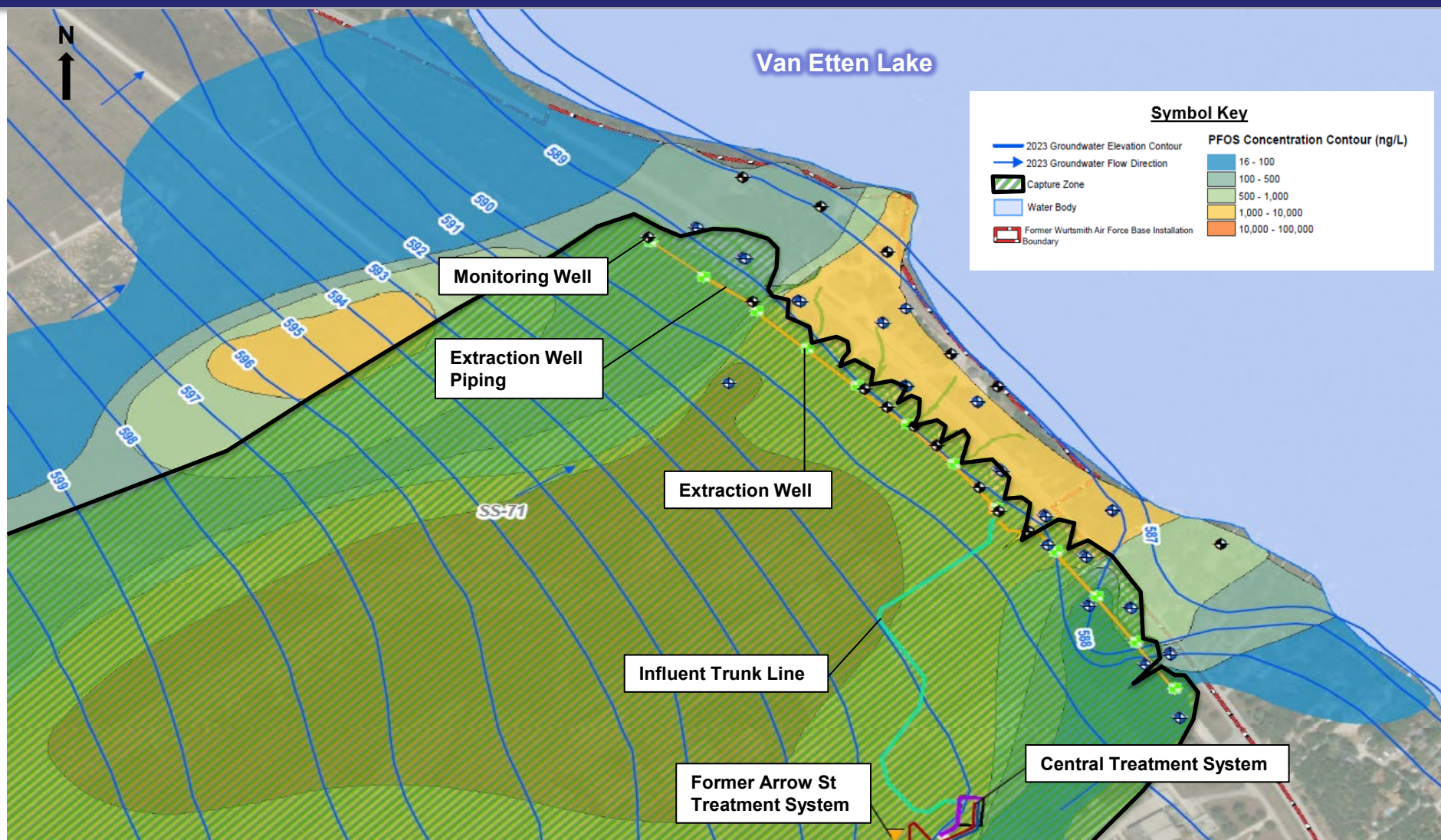
VEL IRA – Concentration Trends



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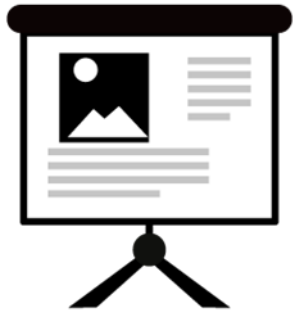
VEL IRA – PFOS Concentration Map



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Presentation:



Remedial Investigation and Alert Aircraft Area IRA Update

Paula Bond
Aerostar SES LLC
Project Manager

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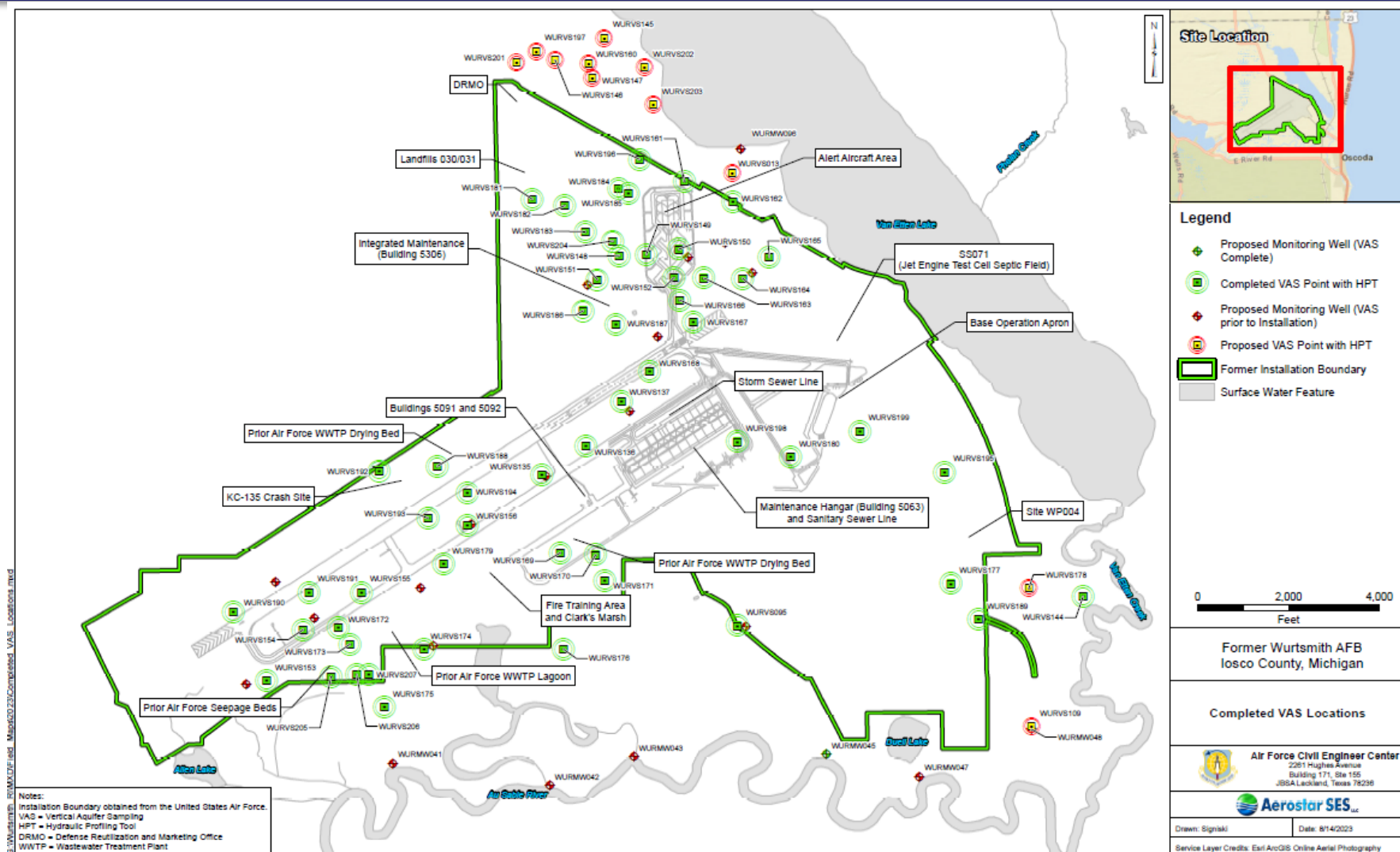
PFAS RI Update



- **PFAS RI UFP-QAPP addendum was issued the week of 5 June 2023 for concurrent EGLE and public review**
 - **Received EGLE and Public comments**
 - **Preparing responses to EGLE comments and substantive Public comments**
- **Vertical aquifer sampling (VAS) began on 10 July 2023. As validated data becomes available it will be shared at subsequent RABs according to DoD policy**
- **Nature and extent investigation work will continue through the summer and fall**



VAS Locations





PFAS RI Update



- **Update to 2015 well inventory**
- **Objective is to confirm there are no private wells being used for drinking water located down-gradient of the former installation and to identify private wells that may be used for sampling.**
 - **Well records search through state databases**
 - **Township utility information**
 - **Letter campaign to verify the use of private drinking water wells**
 - **Door-to-door survey to confirm residences with no response to well surveys**



PFAS RI Update



- **We are looking at possible sources of PFAS on east side of Van Etten Lake including foam**
- **We are contacting homeowners on the east side of Van Etten Lake (Loud Drive) to identify private wells and properties where groundwater and/or soil samples may be collected.**
 - **Private wells**
 - **Soil beneath foam deposition in yards**
 - **VAS sampling**
 - **Monitoring well or piezometer installation (if necessary)**



Interim Remedial Action Alert Aircraft Area Update



- **90% Design Drawings: completed in July 2023**
- **100% Design Drawings: projected August 2023**
- **Proposed Plan: projected September 2023**
 - **Public Comment Period: projected mid-September 2023 through mid-October**
 - **Public Meeting on Proposed Plan: projected early October 2023**
- **Record of Decision: projected Spring 2024**
- **Groundbreaking: projected Spring 2024**
- **Air Force continuing to work with EGLE on SRD**

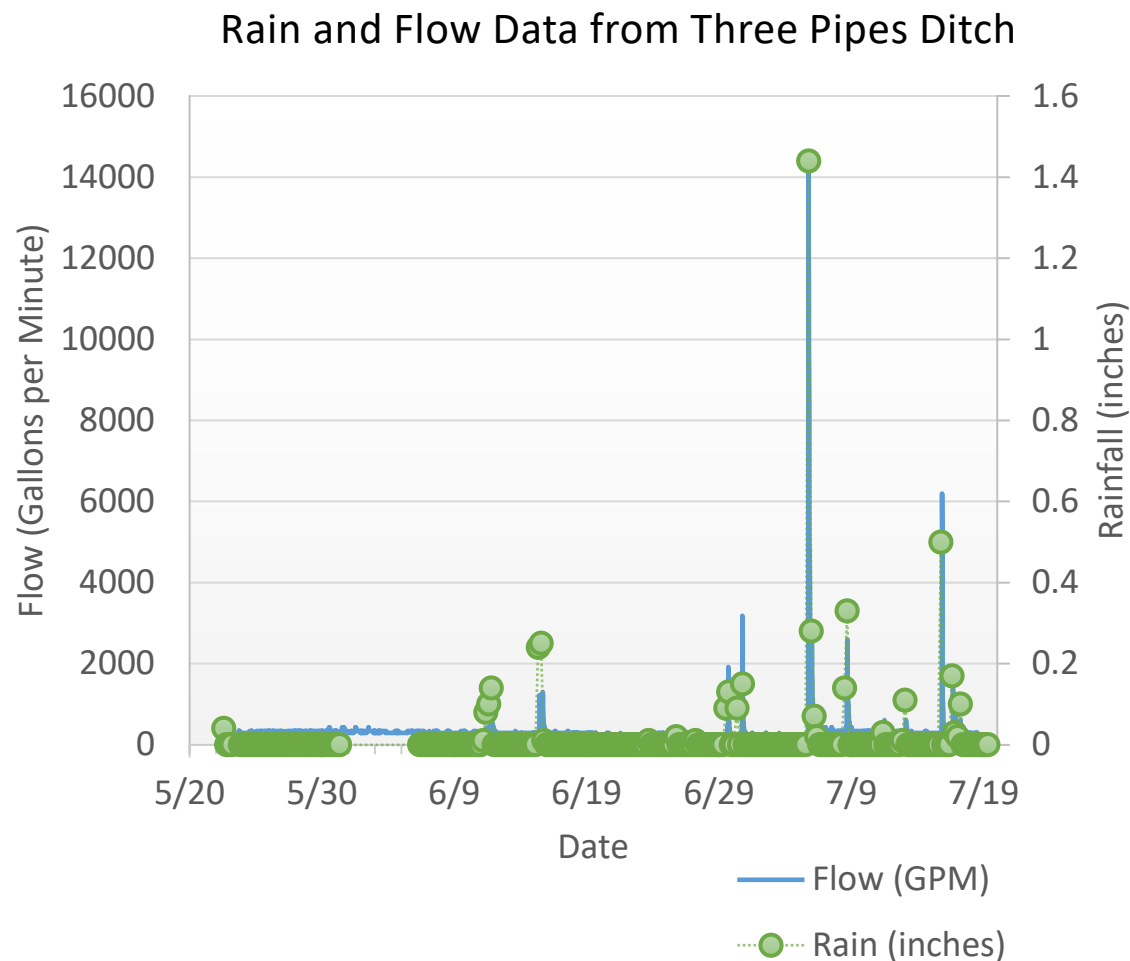
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Three Pipes Ditch Pilot Study Progress



- Flow data is currently being collected
- Performed bench-scale hydraulic conductivity tests on various mixtures of gravel and Fluorosorb®
- Evaluated flow-through tube design for fabrication
- Installation: September 2023



Three Pipes Ditch Pilot Study

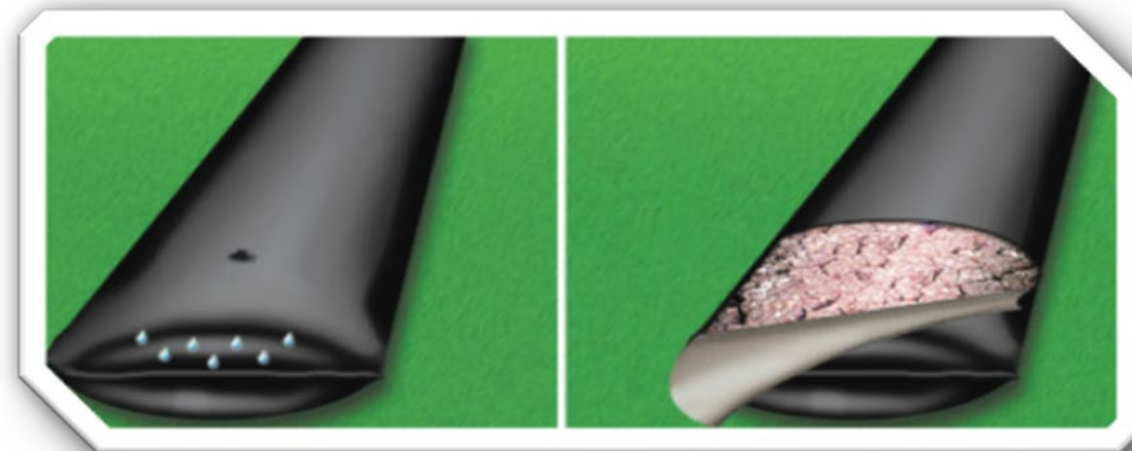


Fluorosorb®



Gravel Matrix

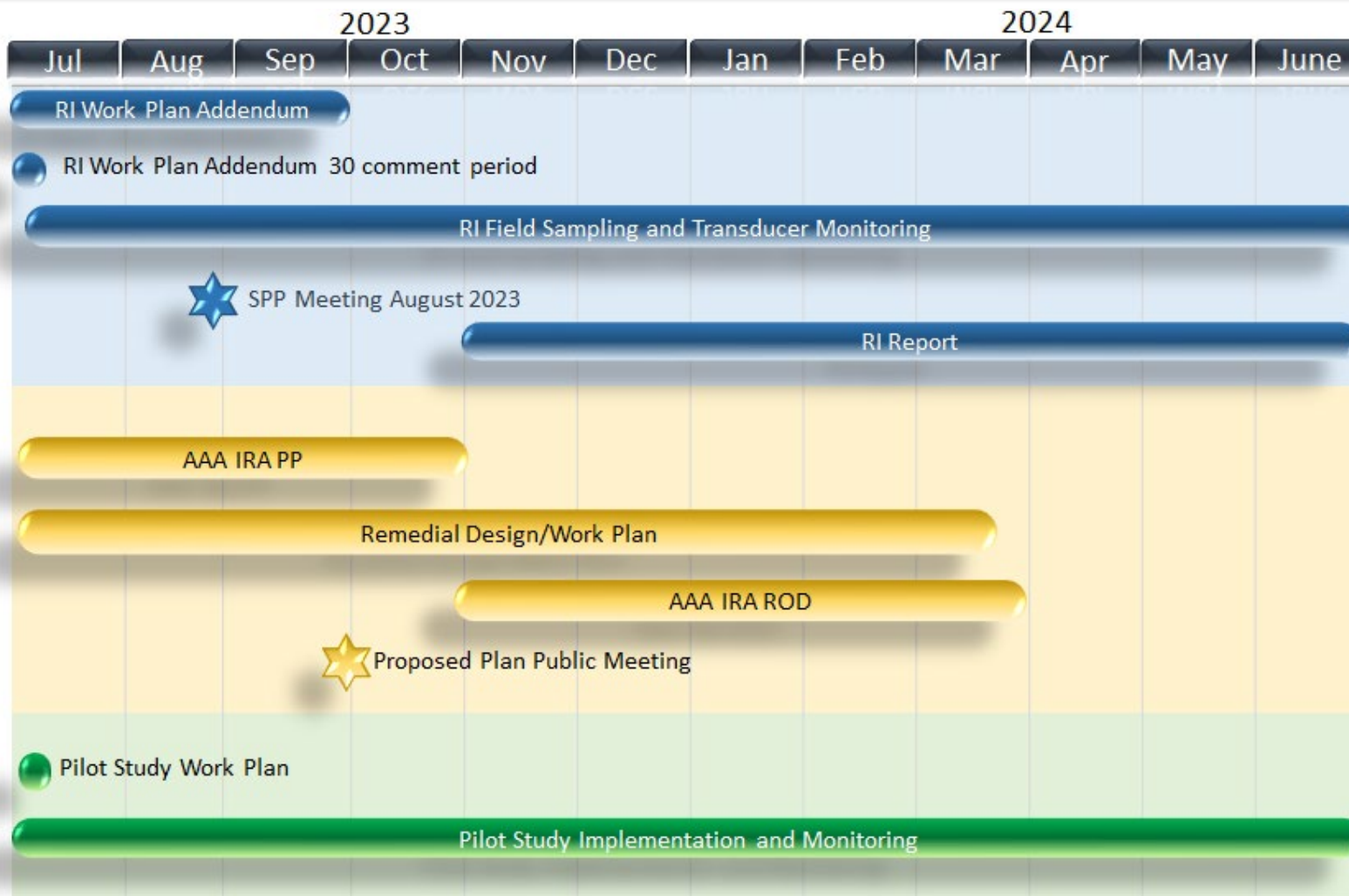
Flow-through Tube



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One Year Outlook

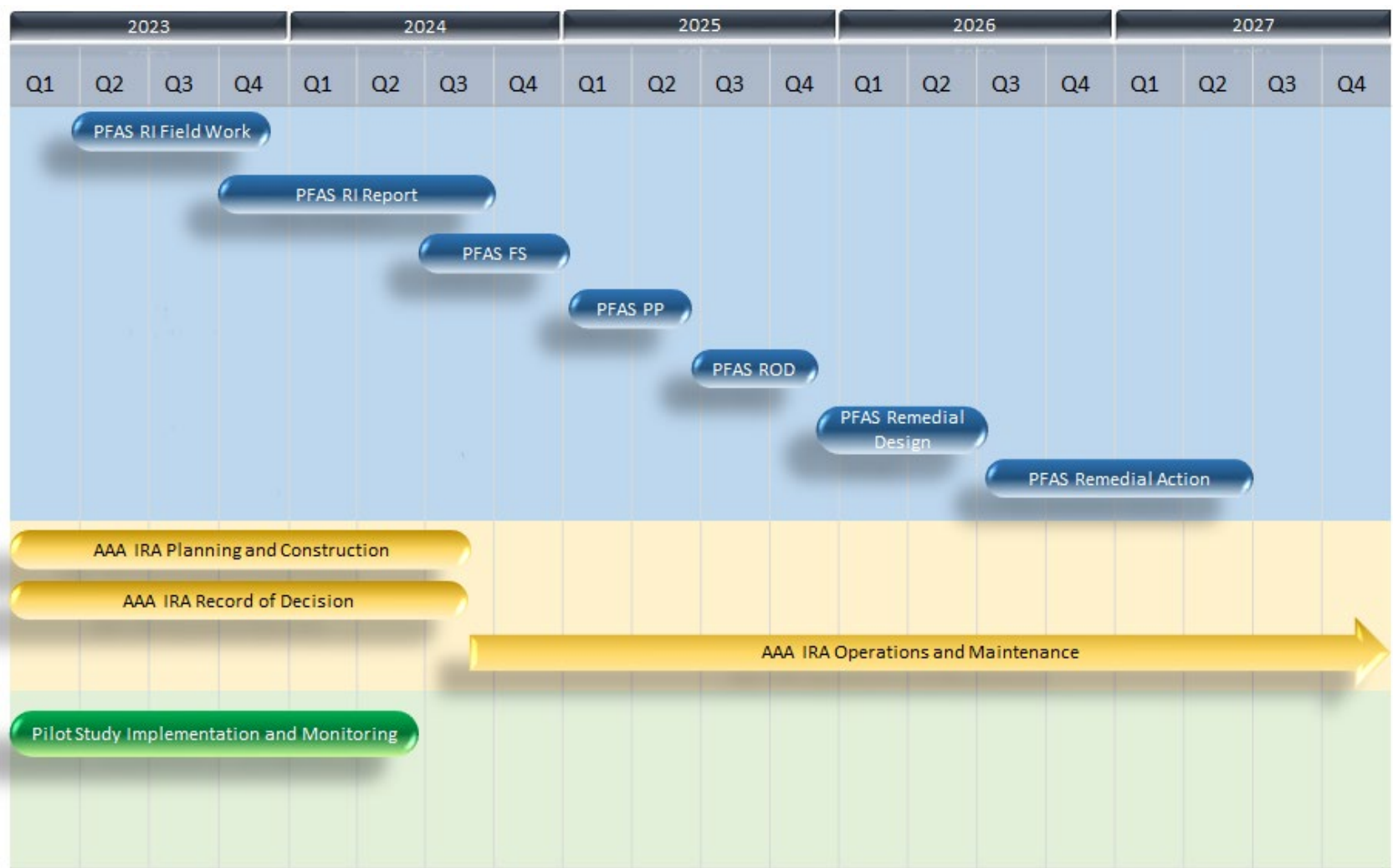


- = PFAS RI Activity
- = AAA IRA Activity
- = Pilot Study Activity

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Five Year Outlook

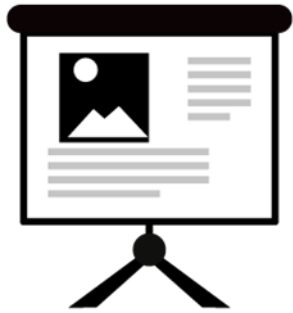


- = PFAS RI Activity
- = AAA IRA Activity
- = Pilot Study Activity

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Presentation:



Former Wurtsmith AFB Critical Process Analysis Overview

Steven Willis
AFCEC/CIBC
BRAC Environmental Coordinator

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Former Wurtsmith AFB CPA



- **The Air Force will conduct a Critical Process Analysis (CPA) to recommend the best remedial technology to address PFAS migration at four sites at Wurtsmith**
- **WHO:**
 - **Air Force Civil Engineer Center (AFCEC) technical staff; regulatory stakeholders; and independent, non-profit consultants with high-level technical expertise and experience in design of PFAS remediation systems for accelerated implementation**
- **WHAT:**
 - **An independent technical analysis to recommend path-forward for remedial activities at high-cost, high-complexity, and/or high-risk sites**

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Former Wurtsmith AFB CPA



■ **WHEN:**

- **As soon as CPA contract is awarded, the team will deploy to Wurtsmith for a week-long field visit for site familiarity – targeting mid-October 2023.**
- **Two CPA teams will meet in San Antonio over a 2-week period shortly after the field event – targeting late October 2023.**
- **Discuss results and recommendations with RAB – early December 2023**

■ **WHERE:**

- **Defense Reutilization and Marketing Office (DRMO)**
- **Landfills 030/031 (LF030/031)**
- **Three Pipes Drain**
- **Wastewater Treatment Plant (WWTP)**

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Former Wurtsmith AFB CPA



■ PRODUCTS:

- After Action Reports (AARs) document the findings and recommendations of each CPA event.**
- AARs identify the need and technical basis for response actions consistent with current DoD/AF and regulatory policy and direction.**
- AARs recommend specific technical activities (based on currently available data) to support AFCEC in conducting scoping, funding, and contracting actions to carry out recommended interim actions.**

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Former Wurtsmith AFB CPA



■ PHASES:

■ Phase 1

- Provides the rationale and a brief description of the conceptual approaches to mitigate public health impacts originating from on-installation sources of PFAS contamination.

■ Phase 2

- Initiated following concurrence of Phase I recommendations.
- Consists of more detailed technical activities and specifications of the approaches described in the Phase 1 report to facilitate scoping, budgeting, and contracting of mitigation actions.
- Report provided as a separate document.



RAB

Member

Questions

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Public Comment Period



Guidelines

- 01** | **Indicate you want to make a comment (follow guidance)**
- 02** | **Wait until the facilitator states you can start your comment**
- 03** | **Three minute time limit**
- 04** | **RAB members will confer after your comment to see if a follow-up action is needed**

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Public Comments

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Conclusion and Adjournment

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Backup



Restoration Advisory Board Rules

<i>01</i>	Respect one another and maintain an atmosphere of open dialogue and exchange of ideas
<i>02</i>	Use our time together efficiently, wisely and respectfully
<i>03</i>	Speak clearly and succinctly one person at a time; avoid interrupting others
<i>04</i>	Listen and remain open to different points of view
<i>05</i>	Maintain a propensity for progress: prepare, discuss, document and move forward
<i>06</i>	Share information early, openly and honestly
<i>07</i>	Accurately and objectively relay to others the discussions that occur at board meetings

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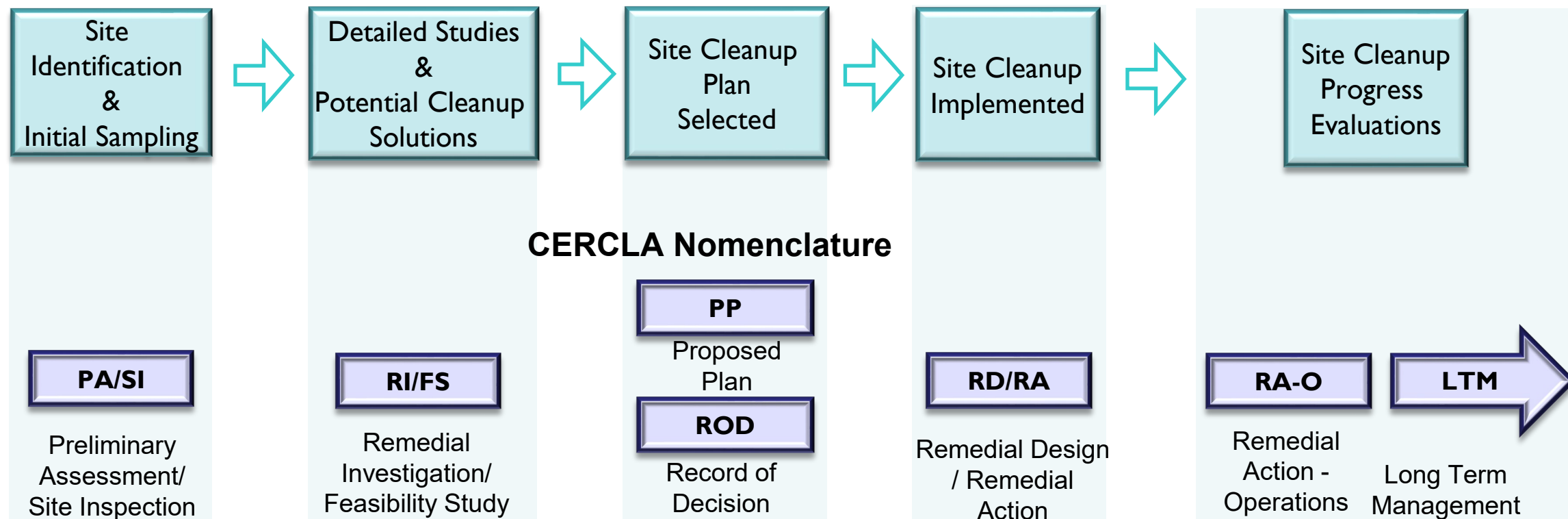
Acronyms



AAA	Alert Aircraft Area	O&M	operation & maintenance
AAR	After Action Reports	OTPD	Oscoda Township Police Department
AFB	Air Force Base	PA	preliminary assessment
AFCEC	Air Force Civil Engineer Center	PFAS	per-and polyfluoroalkyl substances
AFFF	aqueous film forming foam	PFOA	perfluorooctanoic acid
AOI	area of interest	PFOS	perfluorooctane sulfonate
AOPC	area of potential concern	PP	proposed plan
BECOS	BRAC Environmental Construction and Optimization Services	QAPP	Quality Assurance Project Plan
BRAC	Base Realignment and Closure	RA	remedial action
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	RAB	restoration advisory board
CPA	Critical Process Analysis	RAO	remedial action objective
CSM	conceptual site model	RA-O	remedial action operation
CTS	Central Treatment System	RD	remedial design
DOD	Department of Defense	RI	remedial investigation
DERP	Defense Environmental Restoration Program	ROD	record of decision
DRMO	Defensive Reutilization Marketing Office	SI	site inspection
ECCOI	Environmental Cleanup Communication & Outreach Initiative	SPP	system project plan
EGLE	Michigan Dept of Environment, Great Lakes, and Energy	SRD	substantive requirements document
FS	feasibility study	TCRA	time critical removal action
GAC	granular activated carbon	UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
gpm	gallons per minute	USACE	U.S. Army Corps of Engineers
GW	groundwater	USDA	U.S. Department of Agriculture
IRA	interim remedial action	VAS	vertical aquifer sampling
IRP	installation restoration program	VEL	Van Etten Lake
LTM	long-term management	VI	vapor intrusion
MPTS	Mission Street Pump and Treat System	VOC	volatile organic compound
OMM	operation, maintenance and monitoring	WRD	Water Resources Division
		WWTP	wastewater treatment plant



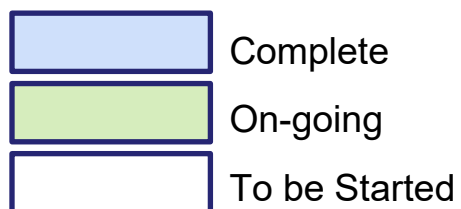
CERCLA Overview



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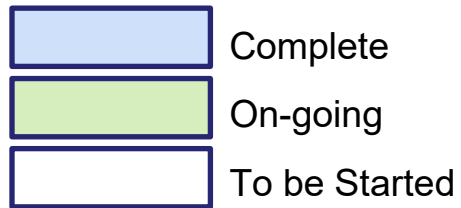
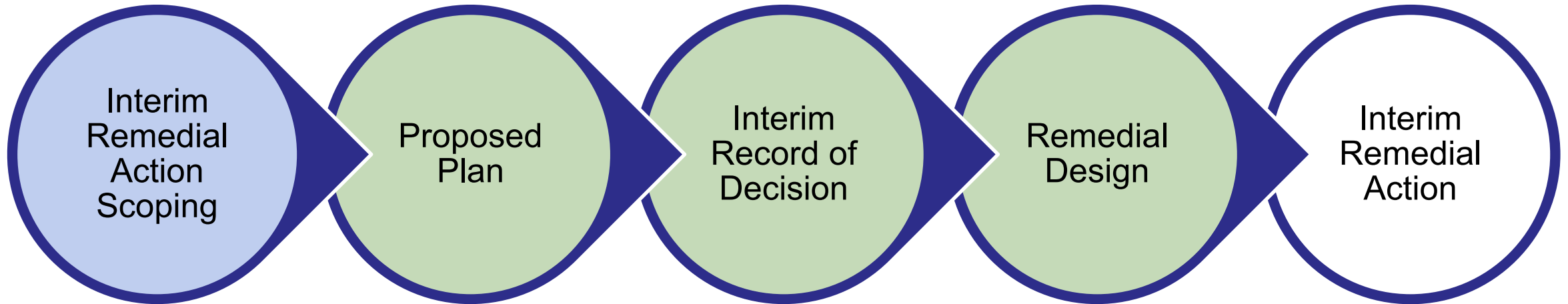
PFAS RI Progress



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PFAS Alert Aircraft Area IRA Progress



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