

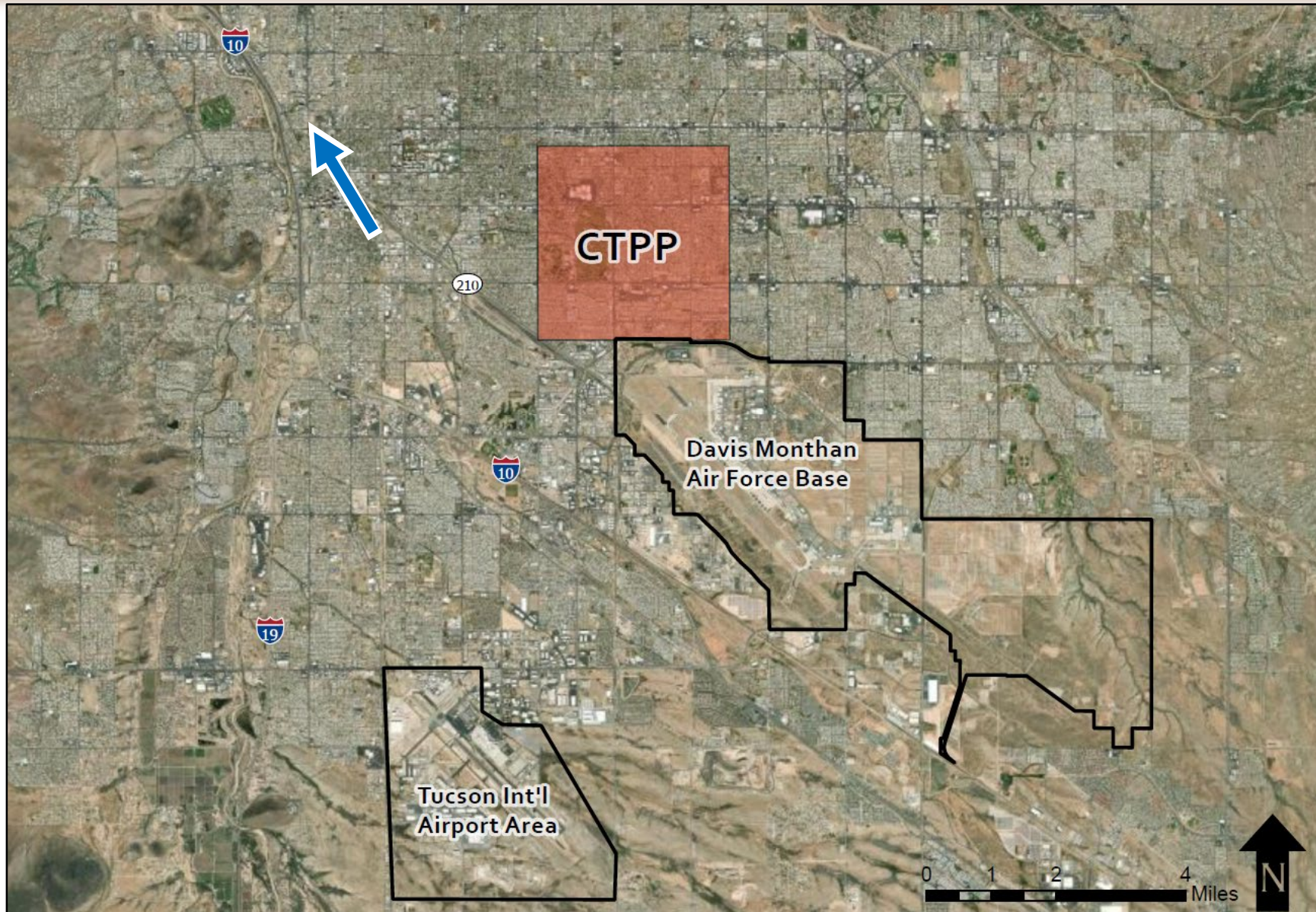
# Central Tucson PFAS Project


Waste Programs Division | Water Quality Assurance Revolving Fund


July 2024



# Central Tucson PFAS Project (CTPP) Location



 General Direction of Groundwater Flow in the Tucson Basin

 Approximate area of the Central Tucson PFAS Project investigation

## **Project Objective:** *Prevent additional PFAS impacts to Tucson Water's Central Wellfield*

### *Critical Project Elements:*

- Conduct groundwater sampling to determine extent of PFAS contamination and collect design data for a treatment system
- Design, construct and operate a PFAS groundwater extraction and treatment system
- Deploy quality assurance and control measures to ensure data accuracy





- Committed \$3.3M in funding from the limited Water Quality Assurance Revolving Fund (WQARF)
- Installed seven (7) monitoring wells based on high-resolution, depth-specific sampling
- Delineated the extent of PFAS impacts in groundwater north of DMAFB
- Developed a 3D model to simulate groundwater flow in central Tucson

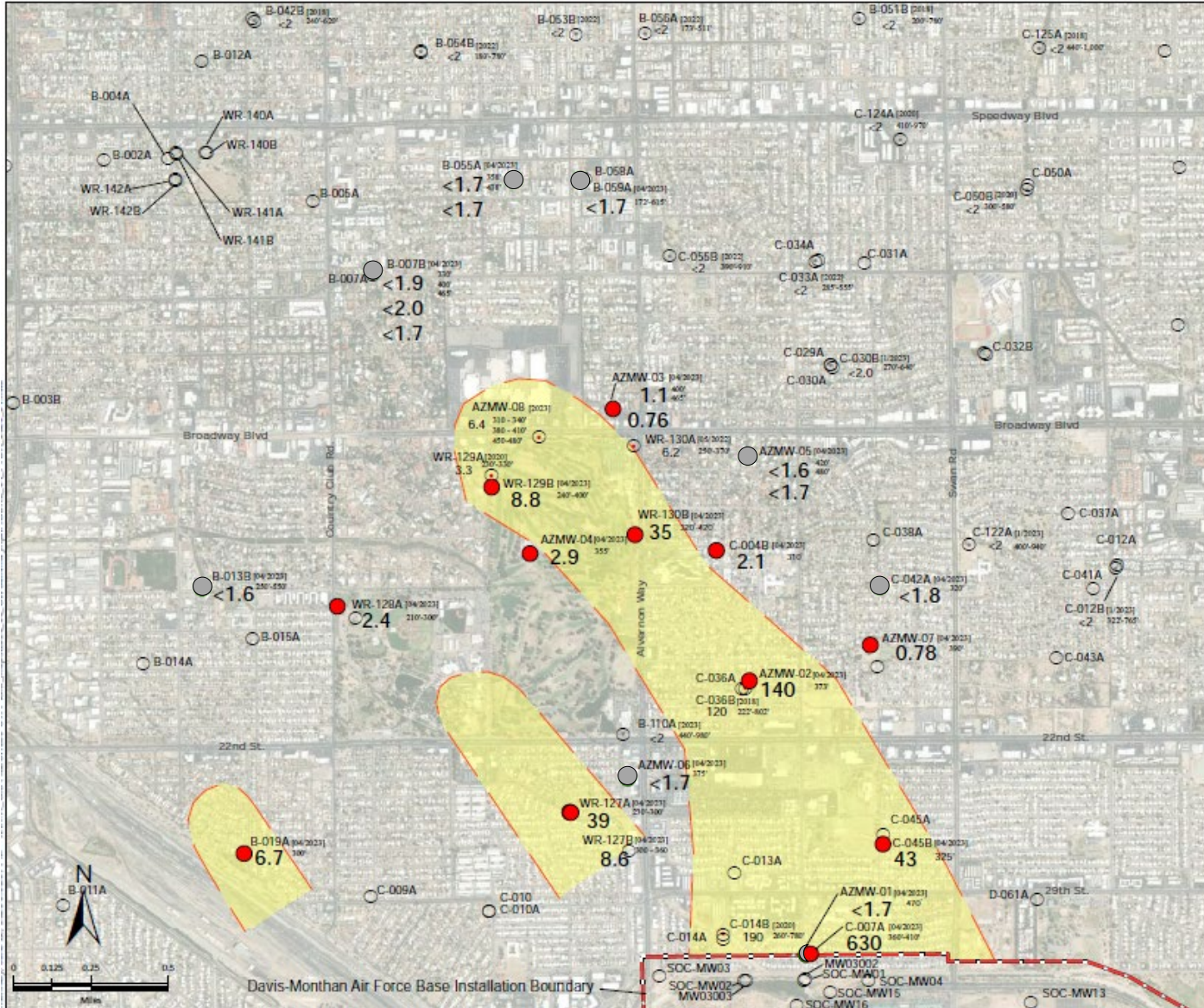


- Worked closely with the Air Force and signed two Environmental Services Agreements totaling \$3.5M
- Designed, constructed, and began operating a demonstration treatment system
- Installed an 8th monitoring well to collect data related to the full-scale remedy
- Closely monitored PFAS in groundwater and updated the 3D model to better simulate groundwater flow








# Groundwater Sampling Results - PFOA



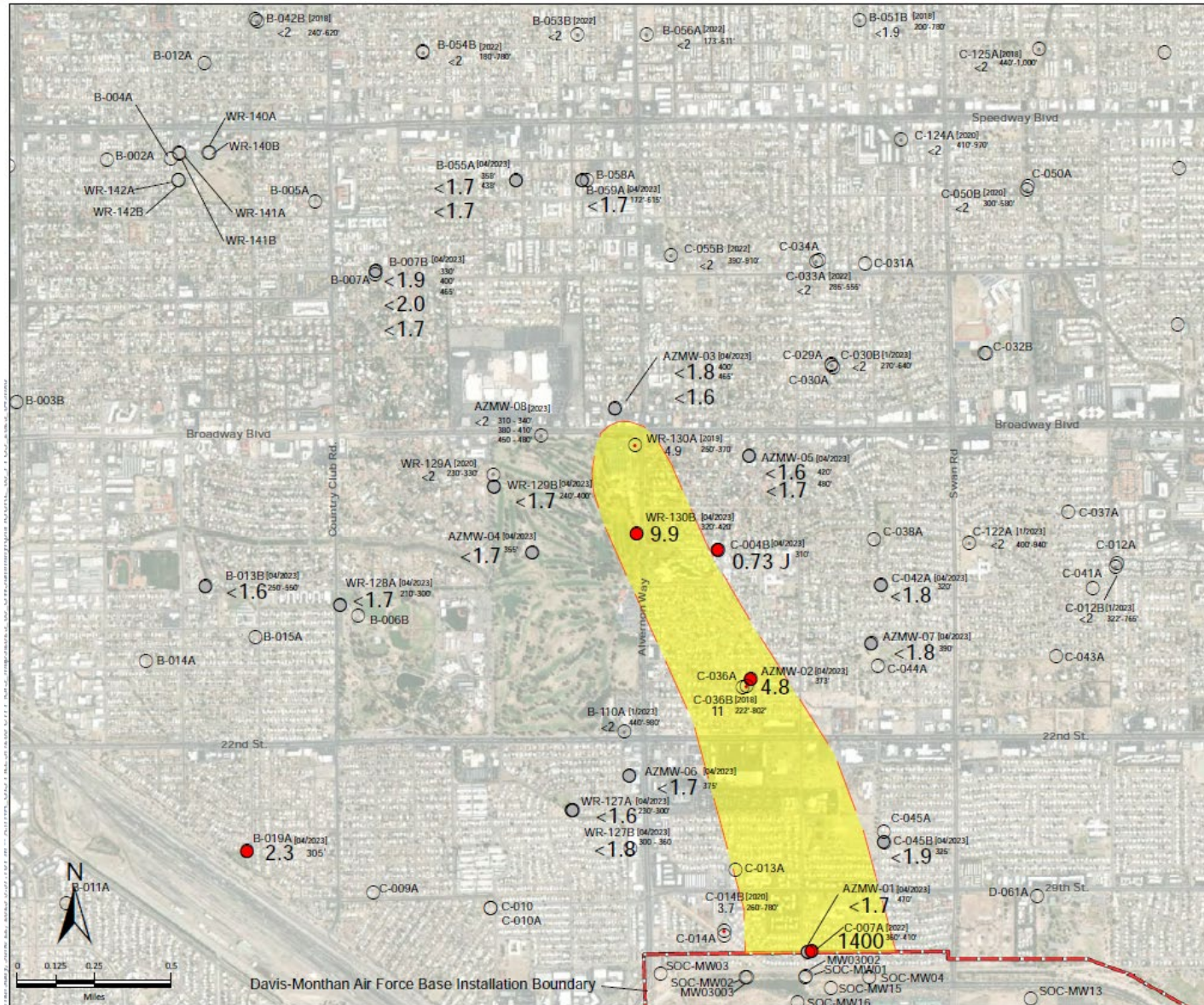
PFOA concentrations are displayed in parts per trillion (ppt)

-  Well with no PFOA detection
-  Well with PFOA detection
-  Well with no PFOA sampling results from Spring 2023




Estimated extent of PFOA greater than the proposed  
EPA Maximum Contaminant Level of 4 ppt



# Groundwater Sampling Results - PFOS

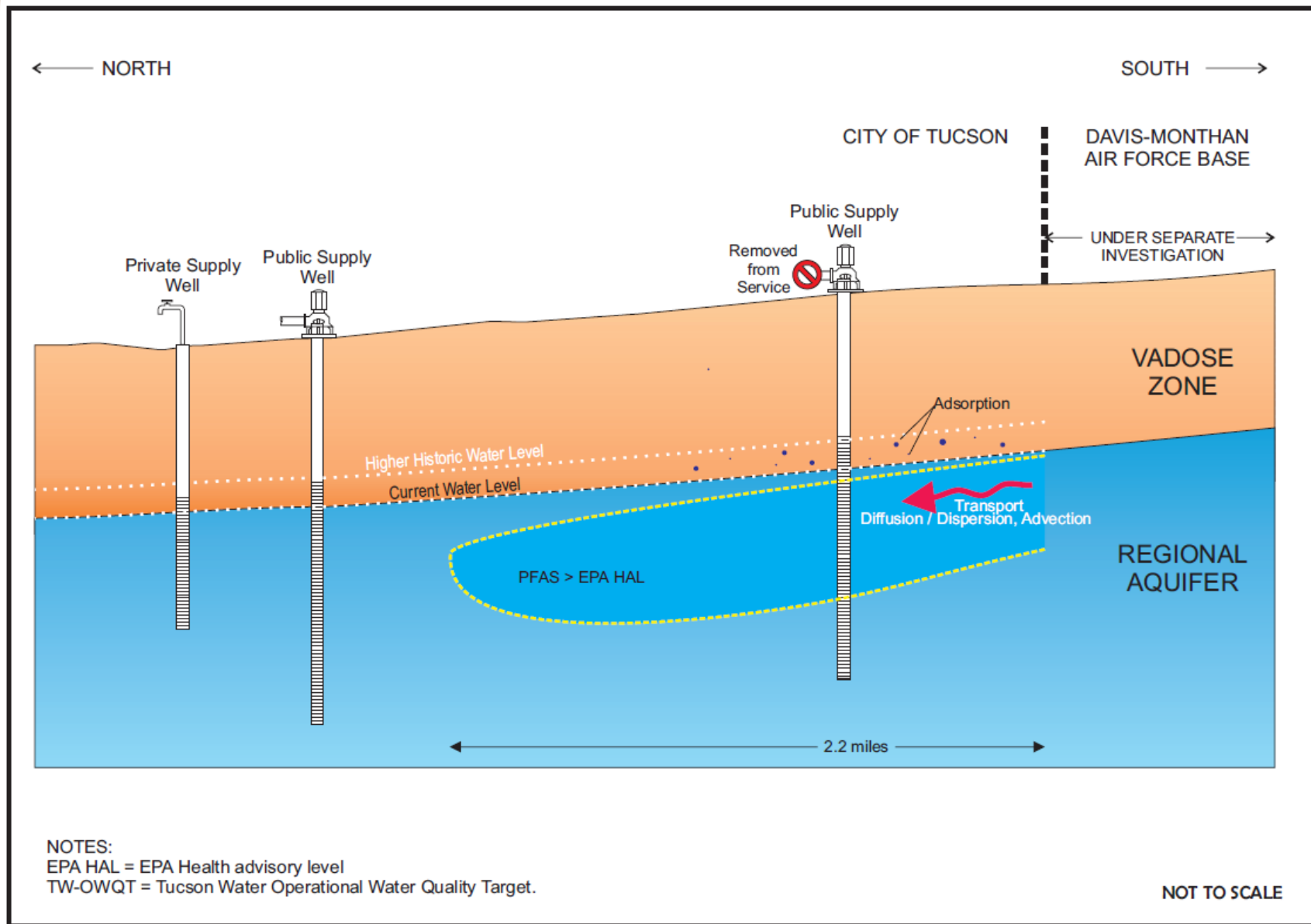


PFOS concentrations are displayed in parts per trillion (ppt)

-  Well with no PFOS detection
-  Well with PFOS detection
-  Well with no PFOS sampling results from Spring 2023

Estimated extent of PFOS greater than the proposed  
EPA Maximum Contaminant Level of 4 ppt

# Conceptual Site Model





# Demonstration Remedy Operation

- Water from Tucson Water well C-007 is extracted and treated using ion exchange (IX) resin.
- All PFAS with an EPA Maximum Contaminant Level (MCL) are removed to below the detection limit
- Water is treated using two IX vessels in series to ensure a robust, redundant remedy
- Nearly 220 million gallons of groundwater have been treated to date



# CTPP Demonstration System Outcomes

*The demonstration groundwater extraction and treatment system is:*

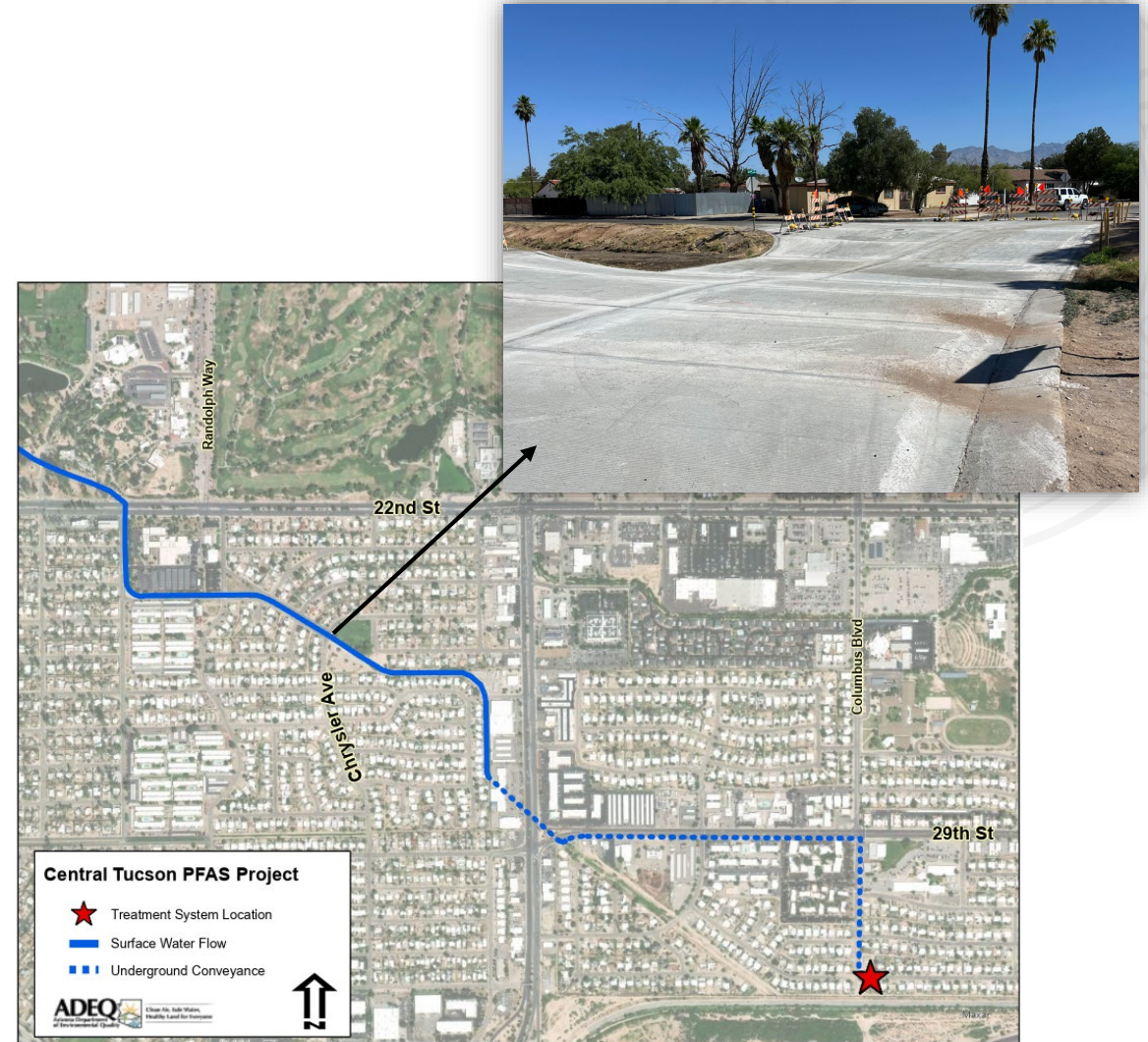
- ✓ Removing PFAS from the highest concentration area the plume
- ✓ Limiting the movement of PFAS toward central Tucson
- ✓ Being used to evaluate the long-term efficiency of ion exchange treatment
- ✓ Providing a platform for evaluating new treatment technologies





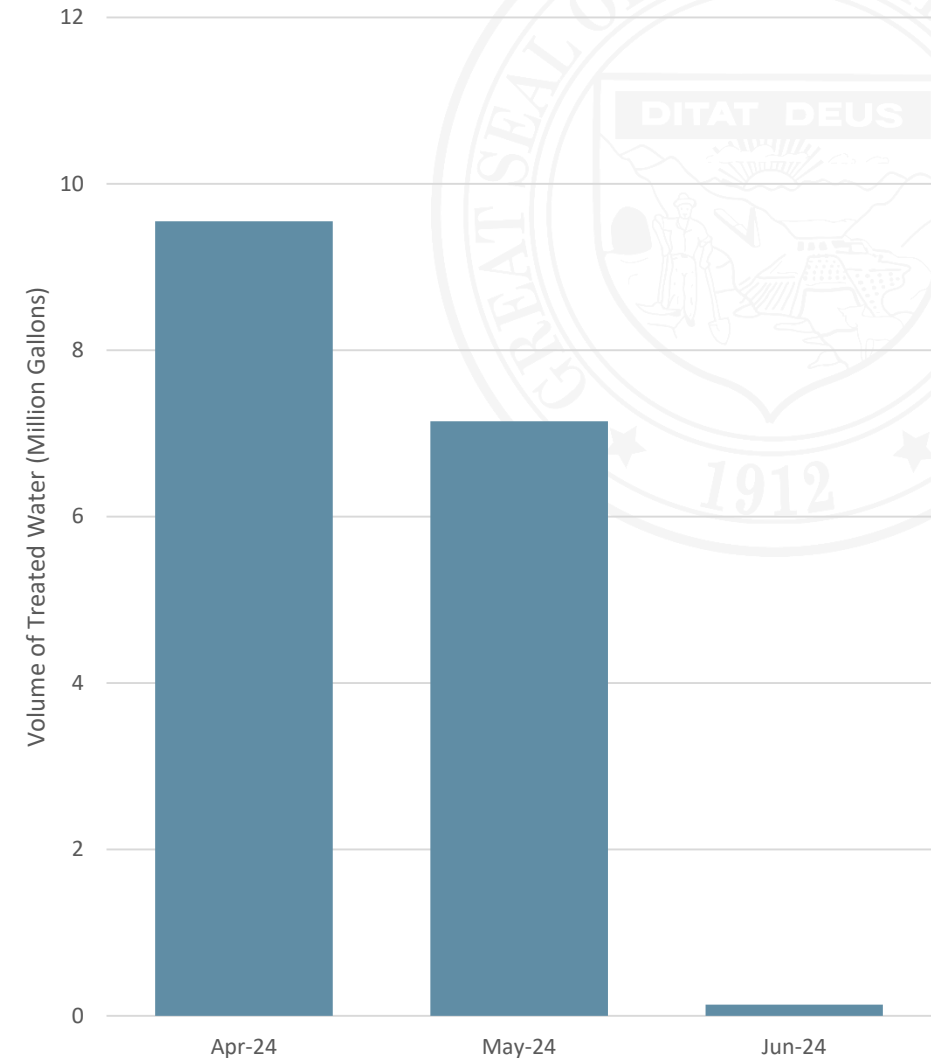
# CTPP Discharge

- Treated water is being discharged to Citation Wash
- Wash maintenance was last completed in December 2023
- ADEQ worked with the City in May 2024 to mitigate physical impacts to the wash crossing at Chrysler avenue, partially funded by the Air Force



# Q2 2024 Demonstration System Performance

- The CTPP Demonstration Treatment System treated approximately 17 million gallons from April to June 2024
- The system was shut down in May and June to allow for construction at Chrysler Avenue
- After restart in June, a well pump failure caused the system to shut down again. Repairs are ongoing.





# Q2 2024 Demonstration System Performance

- All PFAS with a US EPA MCL are removed to below the detection limit

PFAS	Final EPA MCL/HBWC (ppt)	Influent Concentration (ppt)	Effluent Concentration (ppt)
PFOA	4	930	<2
PFOS	4	1300	<2
PFBS	2000	270	<2
GenX	10	<7.8	<2
PFHxS	10	1500	<2
PFNA	10	4.0	<2

ppt = parts per trillion

MCL = Maximum Contaminant Level

HBWC = Health-Based Water Concentration (applies only to PFBS)

Note: the most recent results available are from samples collected 4/30/24

# Contacts & Resources

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