

# ADDENDUM MATERIAL

DATE 6-22-21


ITEM NO. ADD 9



## MEMORANDUM

Date: June 18, 2021

To: The Honorable Chair and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry  
County Administrator 

Re: **Update on Per- and Polyfluoroalkyl Substances in Pima County**

Per- and polyfluoroalkyl substances (PFAS) are a class of more than 3,000 man-made chemicals widely used in common household consumer products including non-stick pans, stain protection coating on textiles (fabrics, upholstery, carpets), as well as the coating of common food packaging and even dental floss. Significantly, these compounds are also widely used in the military and firefighting foams. The most common route of human exposure to this class of chemicals is through ingestion primarily of food (72%), but also from water (22%) and dust (6%).

This class of compounds have been the source of emerging health concerns. Although the science is still in its infancy, epidemiologic studies suggest that human exposure as evidenced by serum PFAS levels may be associated with human disease including increased risks for certain cancers, impaired kidney, liver and thyroid function, immune system disorders, and developmental issues. Although these associations are very concerning, they do not in themselves establish causality. A good summary of the current state of knowledge regarding the human impacts of PFAS exposure is addressed in a detailed report by the University of Arizona College of Public Health and included in my memorandum of January 29, 2020.

It should be noted that although the Environmental Protection Agency (EPA) has identified this class of compounds as "emerging contaminants of concern." There are no national regulatory standards for the presence of these contaminants in drinking water. Instead the EPA has established a non-regulatory, non-enforceable, drinking water "health advisory level" for two of these compounds (perfluorooctanoic acid and perfluorooctane sulfonic acid); set at 70 parts per trillion.

On February 2, 2020, I followed up with a report on the status of PFAS received and conveyed by the Pima County sewerage system. I provided an additional communication on October 29, 2020, related to restoring land application of biosolids based on an assessment demonstrating low PFAS contamination risk.

On April 8, 2021, the EPA released a report entitled, Human Health Toxicity Values for Perfluorobutane Sulfonic Acid (PFBS) and Related Compound Potassium Perfluorobutane Sulfonate. Subsequently on April 27, 2021, EPA Administrator Regan established a new

“EPA Council on PFAS” charged to better understand and ultimately reduce the potential risks caused by these chemicals. Based on these actions, it is clear that the human health impacts of PFAS contamination are being monitored by federal authorities and that subsequent regulatory action is likely to happen in this space, although not in the short term.

The Arizona Department of Environmental Quality (ADEQ) has continued to pursue a strategy to address the PFAS threat to Tucson’s drinking water supply. ADEQ has dedicated funds from its Water Quality Assurance Revolving Fund to delineate and capture PFAS-contaminated groundwater from impacting additional drinking water production wells, in coordination with Tucson Water and the Air Force Civil Engineering Center.

On June 8, 2021, the City of Tucson announced that Tucson Water suspended operation of the Tucson Airport Remediation Project (TARP) water treatment facility, shifting water delivery of approximately 60,000 customers to a combination of recharged Central Arizona Project water and other groundwater sources not contaminated with PFAS.

The County has a limited role regarding PFAS exposure occurring as a result of drinking water given that we do not serve potable water. Additionally, the County does not have the regulatory authority in terms of ground water and water systems regulation until and unless the EPA establishes drinking water standards. Regardless of PFAS drinking water levels, any impactful future risk mitigation and exposure reduction strategies will need to address the exposures that are associated with food preparation and packaging.

The District 5 Supervisor has requested a presentation on this topic at the June 22, 2021 Board of Supervisors meeting. Attached is presentation that will be given by the Department of Environmental Quality for your advance review. Dr. Garcia will also be available during the Board meeting to respond to questions.

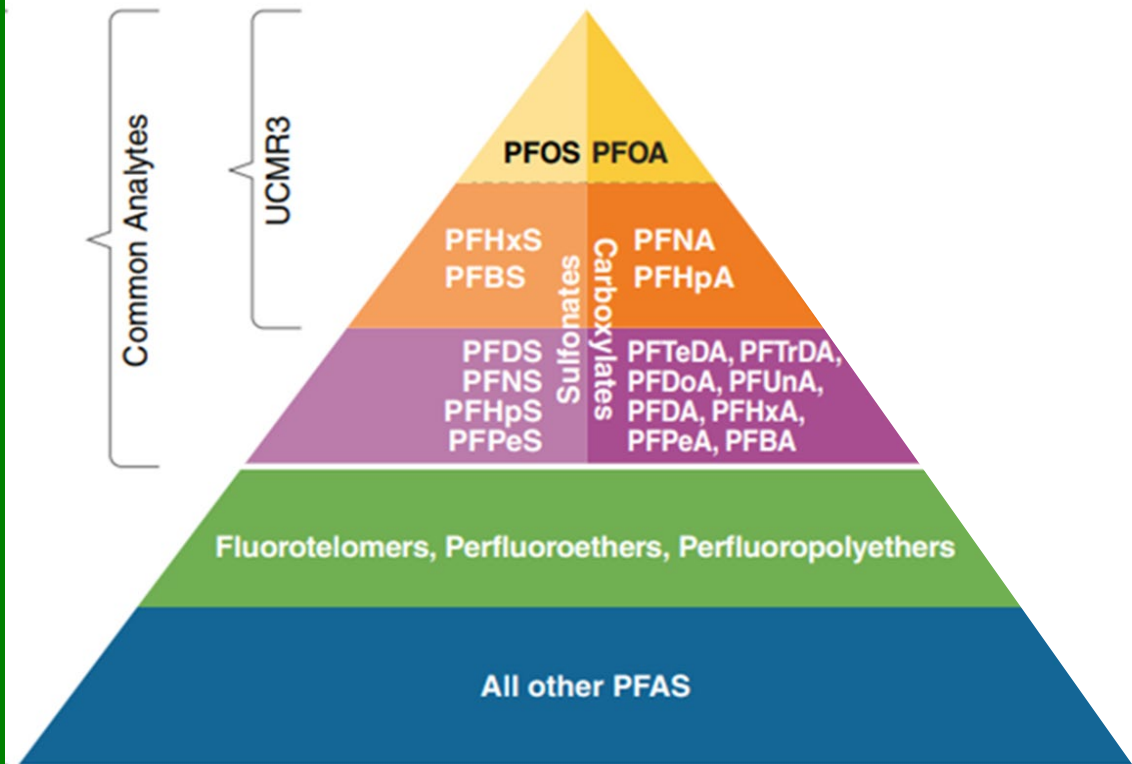
#### Attachment

c: Jan Leshar, Chief Deputy County Administrator  
Carmine DeBonis, Jr., Deputy County Administrator for Public Works  
Francisco García, MD, MPH, Deputy County Administrator and Chief Medical Officer,  
Health and Community Services  
Yves Khawam, PhD, Assistant County Administrator for Public Works  
Ursula, Nelson, Director, Environmental Quality  
Jackson Jenkins, Director, Regional Wastewater Reclamation

# National & Local Strategies to Minimize Impact of PFAS

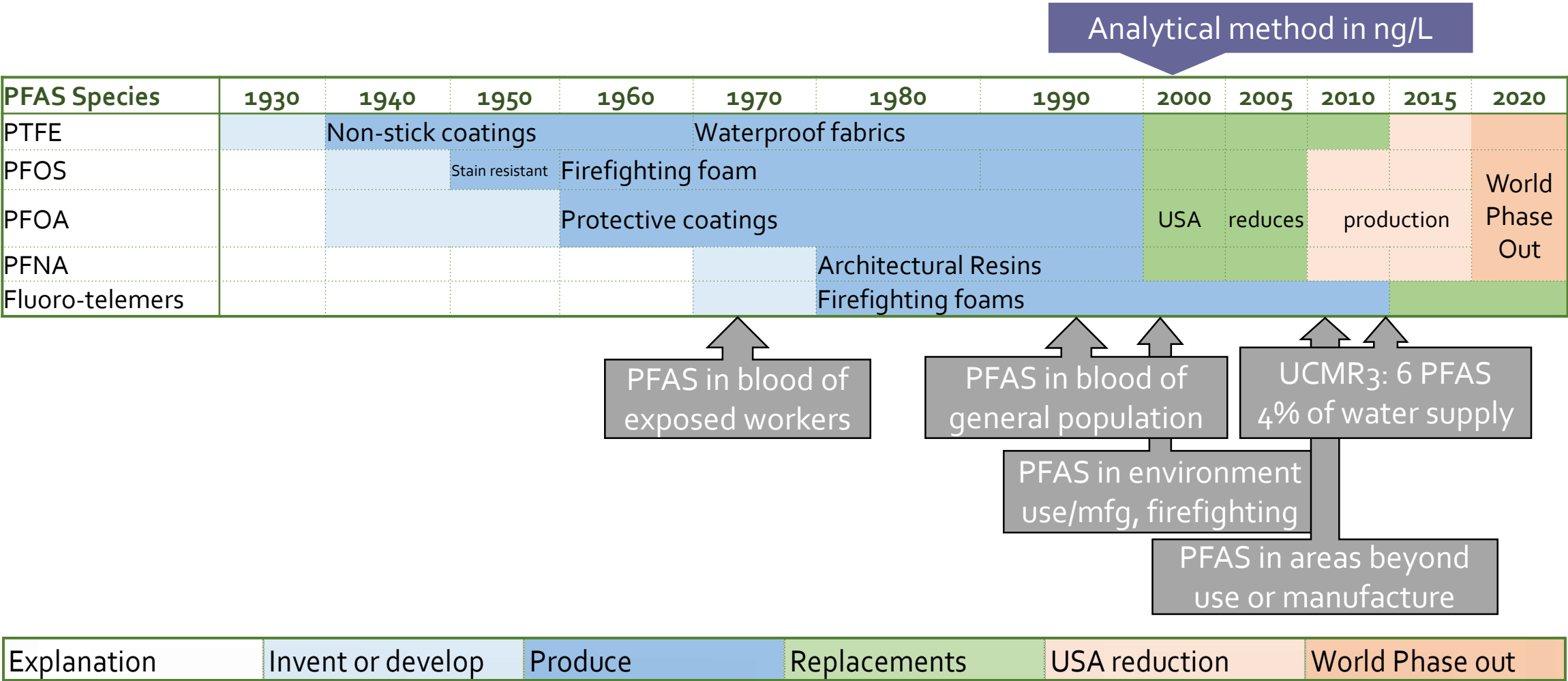
June 22, 2021 Pima County Board of Supervisors

Marie Light  
Pima County Department of Environmental Quality



5,000 – 10,000 chemicals!

# Discovery, Use and Phase-out of 'Forever Chemicals'



# Estimated Primary Route of Exposure to PFAS is Ingestion

- 72% Food Ingestion
  - Fish caught in water contaminated by PFAS
  - Food packaged in material containing PFAS
    - Grease-resistant paper
    - Fast food containers/wrappers
    - Microwave popcorn bags
    - Pizza boxes
    - Candy wrappers
  - Non-stick cookware
- 22% Water Consumption
- 6% Dust Ingestion

# Human Health Outcomes Associated with some PFAS Chemicals

	PFAS Type											
	Long-Chain								Short-Chain			
	PFOA	PFOS	PFHxS	PFNA	PFDeA	PFUA	PFDoA	PFOSA	PFHpA	PFBuS	PFBA	PFHxA
Cardiovascular disease	9 HR	3 HR				1 LR			1 HR			
Gastrointestinal		1 HR										
Musculoskeletal	5 HR	1 HR 1 LR	1 HR	2 HR								
Endocrine	2 HR 6 NC 1 LR	2 HR 7 LR	2 HR 1 NC	2 NC	2 NC	3 NC	4 NC					
Immune	13 HR	7 HR	6 HR	8 HR	6 HR	2 HR	5 HR			3 HR		
Reproductive	5 NC 6 HR	5 NC 3 HR	2 HR	1 NC		1 NC						
Pregnancy and Birth Outcomes		3 HR		1 HR	1 HR							
Developmental	5 LR 6 HR	3 HR	2 HR	1 HR	1 HR			1 HR				
Diabetes	2 LR 2 HR	4 HR		2 LR		3 LR						
Cancer	4 HR 2 LR	2 HR 1 LR	2 HR			1 HR		1 HR				
Hepatic	39 HR 1 LR	21 HR	3 HR	4 HR	3 HR	1 HR				1 HR		
Renal	16 HR	9 HR	2 HR	1 HR								

## Long-Chain

- Persistent
- Bioaccumulation

## Short-Chain

- Replacements
- Mobile
- Harder to remove

## Explanation

# - number of studies

HR – High risk

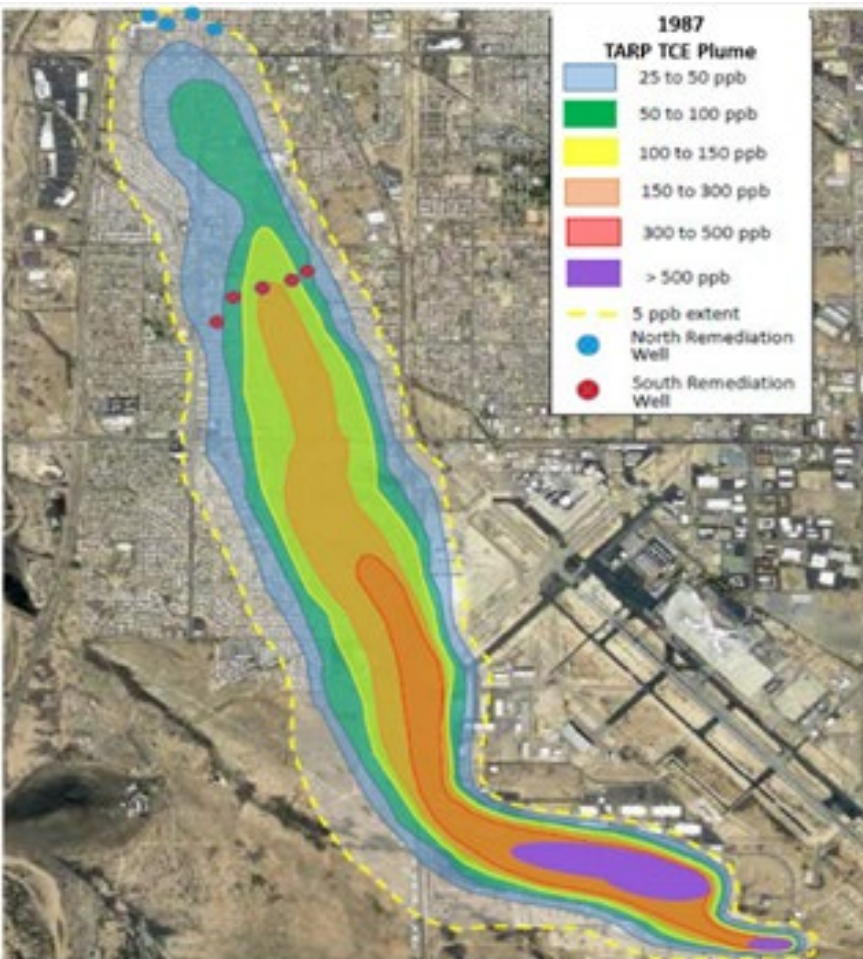
LR – Low risk

NC – Not clear

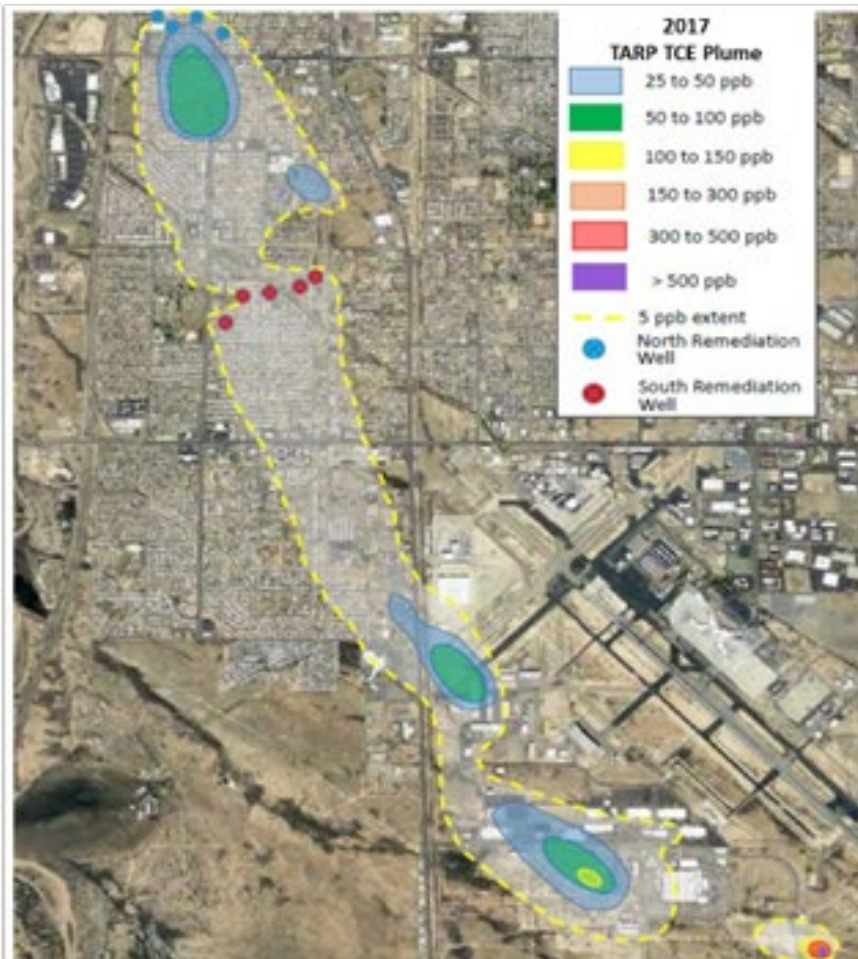


# TCE Plume and PFAS Occurrence north of Airport

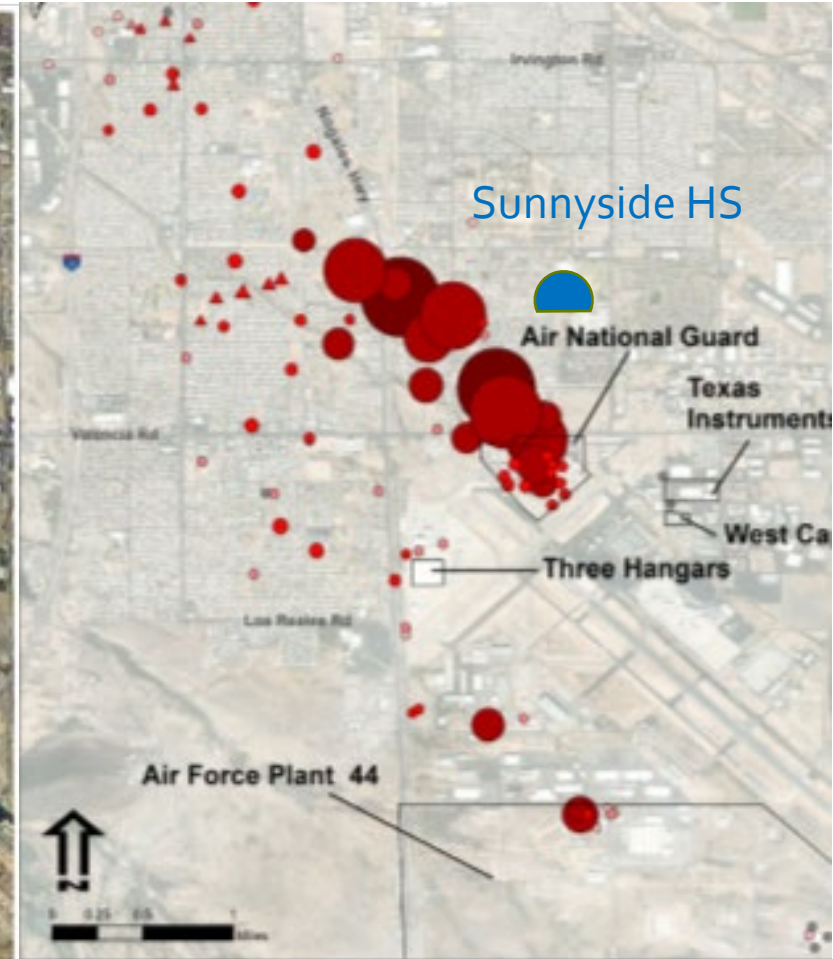
1987 Main TCE Plume



2017 Main TCE Plume

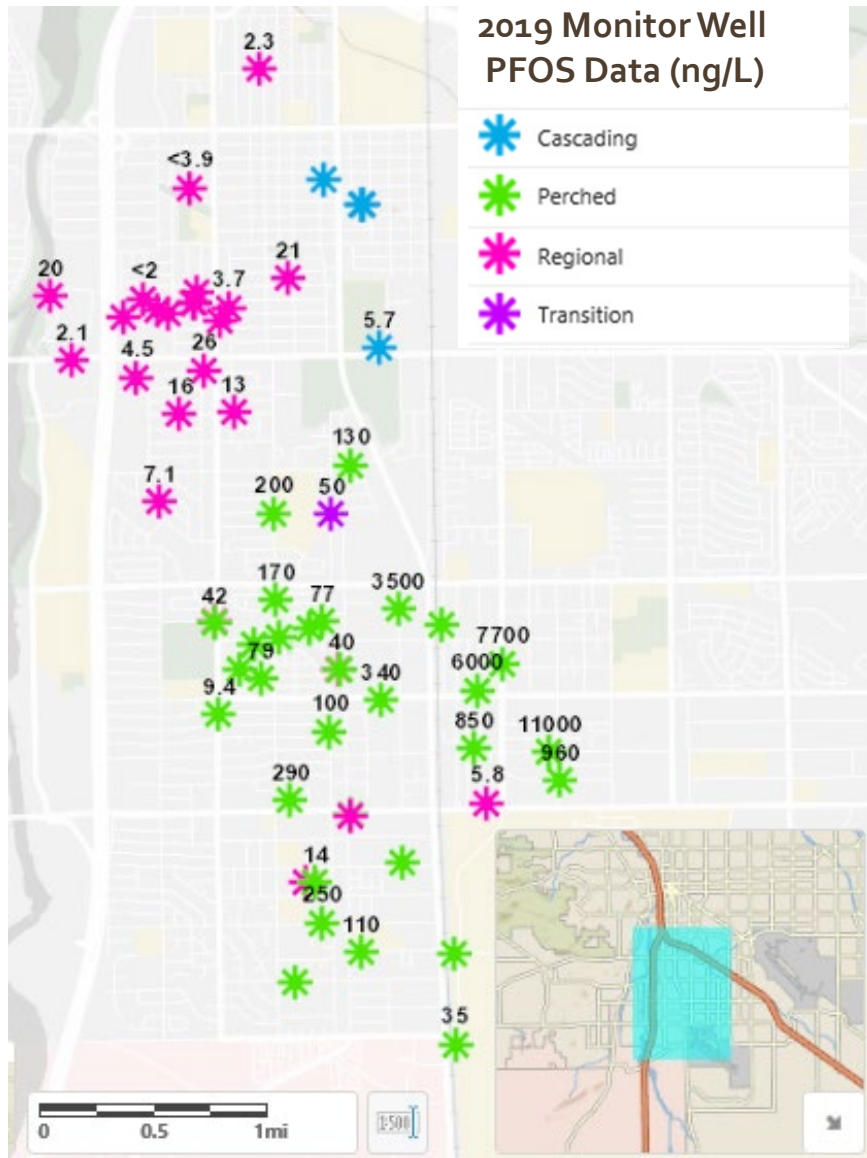


2021 Select PFAS\*



Selected PFAS: PFOS, PFOA, PFHxS, PFHpA

# PFAS in Monitor Wells and Potential in Private Wells



- EPA regulates Public Water Systems, not private wells
  - No unregulated contaminant monitoring requirements
  - No recommended criteria or standards
- Arizona policies
  - ADWR: Register all wells drilled in the state
  - ADHS: Health Consultations, analytical lab licensing
  - ADEQ: Regulates public water systems (PWS)
  - Pima County Health Department: Delegated authority for PWS
- September 2019 Awareness of PFAS in Monitor Wells
  - Concentrations are above health-based guidance level (70 ng/L)
  - Highest concentrations in perched aquifer
  - PFAS is migrating north northwest
  - Lateral extent is unclear
  - Private wells with potential exposed is unclear



# Fall 2019 Local Study: Timeline of Activities

	Lapsed Time (days)
• September 11, 2019: Agencies exchanged water quality data and well inventories	0
• September 16, 2019: PDEQ submitted 1 <sup>st</sup> list (those most likely to be operational)	5
• September 19, 2019: ADEQ sent 1 <sup>st</sup> set of notices to 47 private well owners <ul style="list-style-type: none"><li>• Information about PFAS in English and Spanish</li><li>• Request permission to sample well at no cost to well owner</li><li>• Offer to provide a safe source of water if the sampling shows</li></ul>	8
• October 29, 2019: PDEQ submitted 2 <sup>nd</sup> list (larger area)	48
• November 11, 2019: ADEQ sent 2 <sup>nd</sup> set of notices to 44 private well owners	61
• ADEQ conducted sampling as well owners requested	
• ADEQ provided results to well owners, and offered bottled water to those with positive results until a permanent source of safe water could be provided	

# Status of PFAS Activities for Public Drinking Water Systems

## National level

- 2016: EPA sets health advisory level
  - PFOA & PFOS at 70 ng/L
- 2018: EPA develops analytical methods
- Dec'2019: EPA set to regulate PFAS
  - Develop an MCL using 70 ng/L
  - Use a screening level of 40 ng/L
- Jun'2020: PFAS is a toxic chemical
- Mar'2021: UCMR5 - 29 PFAS
- Mar'2021: EPA proposes effluent guidelines
- Apr'2021: EPA creates Council on PFAS
- May'2021: New Jersey DEP sets MCLs
  - PFOA 14 ng/L
  - PFOS 13 ng/L

## Arizona and locally

- 2018-2019: water utilities sample wells
- 2018: Tucson Water sets operational PFAS target at 18 ng/L
- 2019-present:
  - Drilling monitor wells
  - Additional local studies as PFAS is identified
- April 27, 2021 Governor Ducey letter to DOD
  1. Share all PFAS data from DOD installations
  2. Develop preliminary conceptual site model for each facility
  3. Estimate time range of PFAS reaching public drinking water systems
  4. Conduct accelerated remedial investigations
  5. Design & install early response action to protect public drinking water system
- June 8, Tucson Water announce closure of TARP