Park Euclid WQARF Site
CAB Update

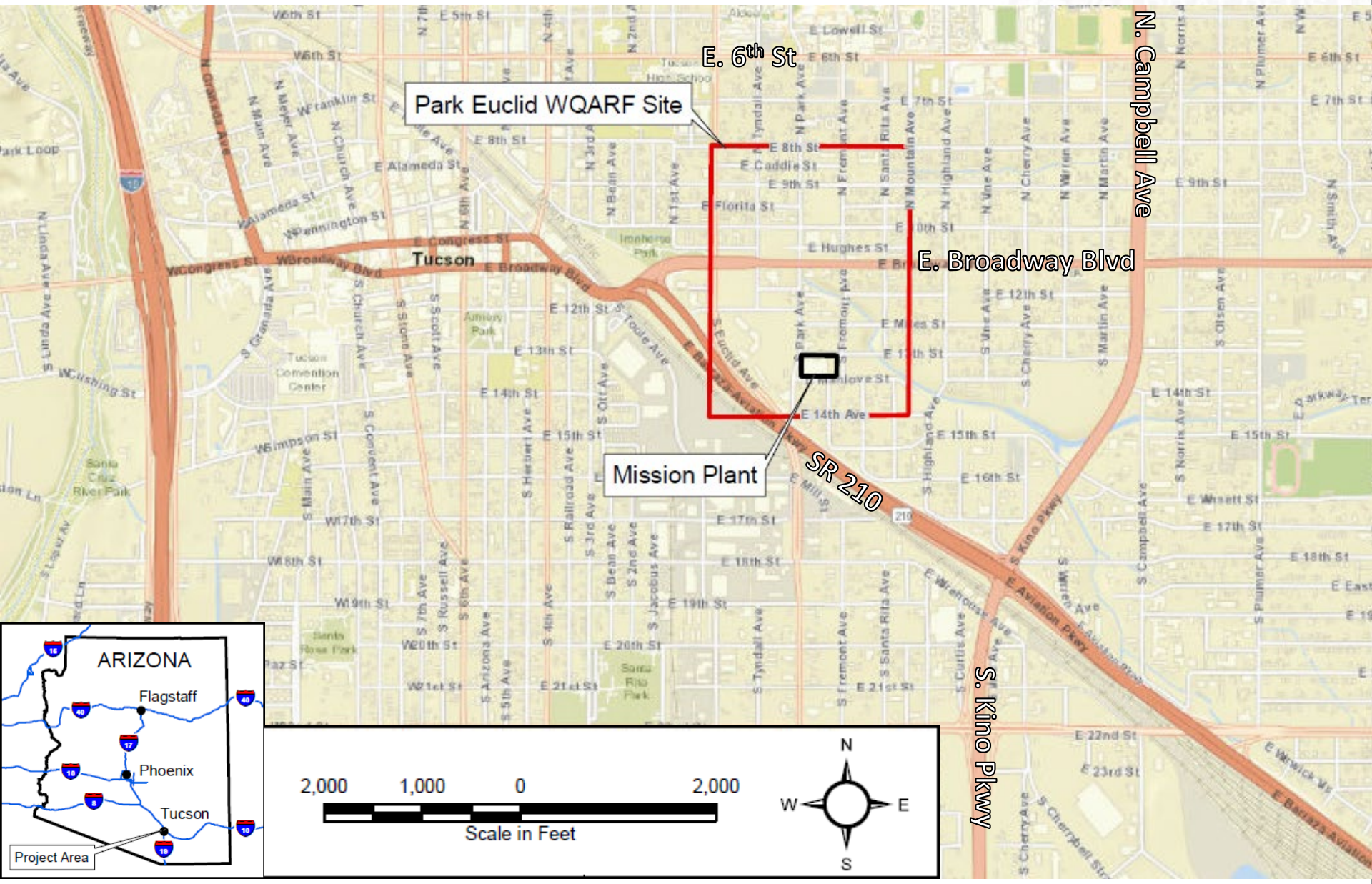
March 26, 2024

Mary Charlson, Project Manager

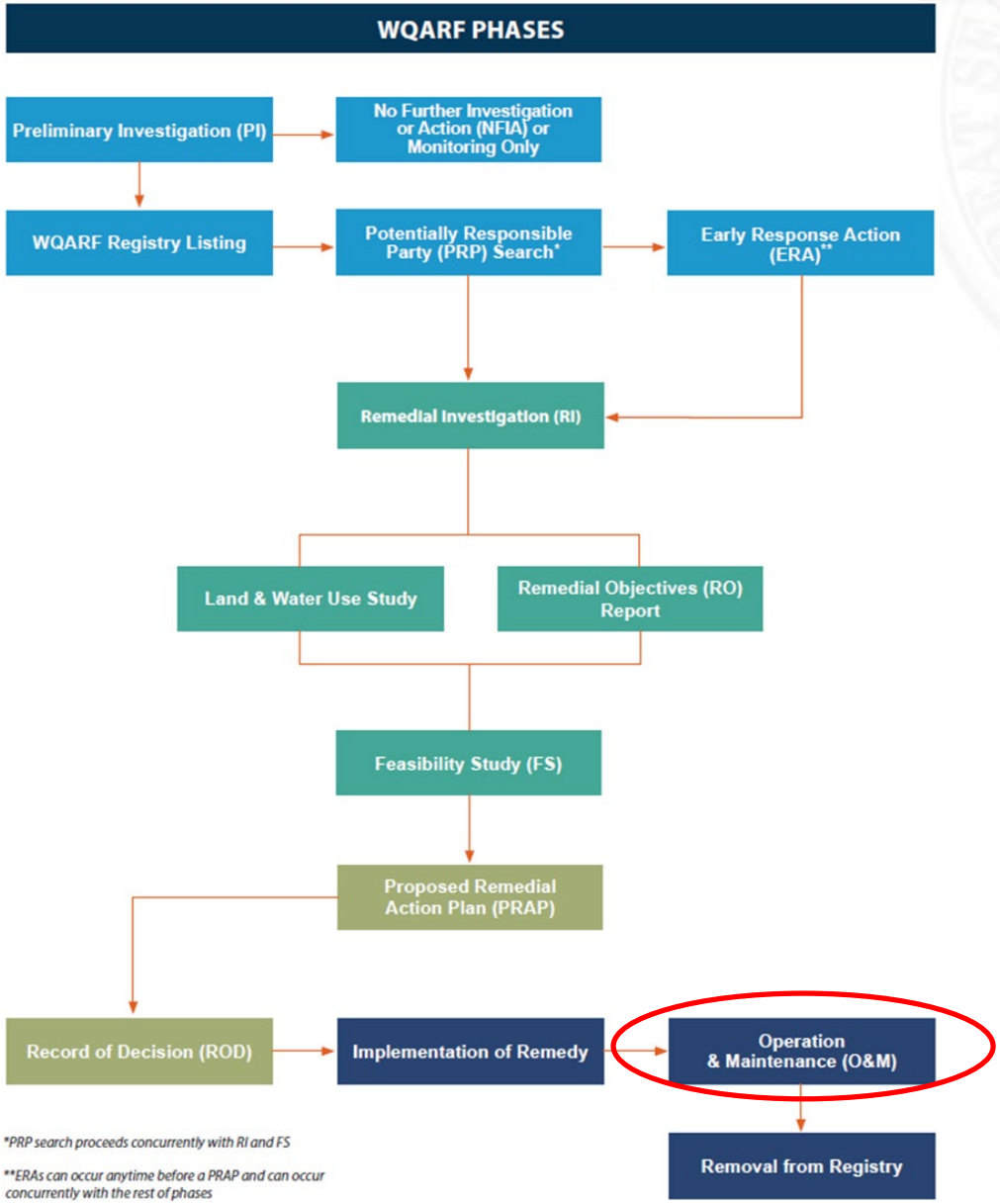
ADEQ Arizona Department of Environmental Quality

Clean Air, Safe Water, Healthy Land for Everyone

Site Location



WQARF Phase


WQARF PHASES
Preliminary Investigation (PI)
No Further Investigation or Action (NFIA) or Monitoring Only
WQARF Registry Listing
Potentially Responsible Party (PRP) Search*
Early Response Action (ERA)**
Remedial Investigation (RI)
Land & Water Use Study
Remedial Objectives (RO) Report
Feasibility Study (FS)
Proposed Remedial Action Plan (PRAP)
Record of Decision (ROD)
Implementation of Remedy
Operation & Maintenance (O&M)
Removal from Registry
*PRP search proceeds concurrently with RI and FS
**ERAs can occur anytime before a PRAP and can occur concurrently with the rest of phases

Site Summary

- Placed on the WQARF registry in 1999 following an investigation at the Mission Linen facility.
  - Contaminants of Concern (COCs):
    - Tetrachloroethene (PCE)
    - Trichloroethene (TCE)
    - cis-1,2-dichloroethene (cDCE)
    - trans-1,2-dichloroethene (tDCE)
    - Vinyl chloride (VC)

- Impacted Media:
  - Soil/Soil Vapor
  - Groundwater

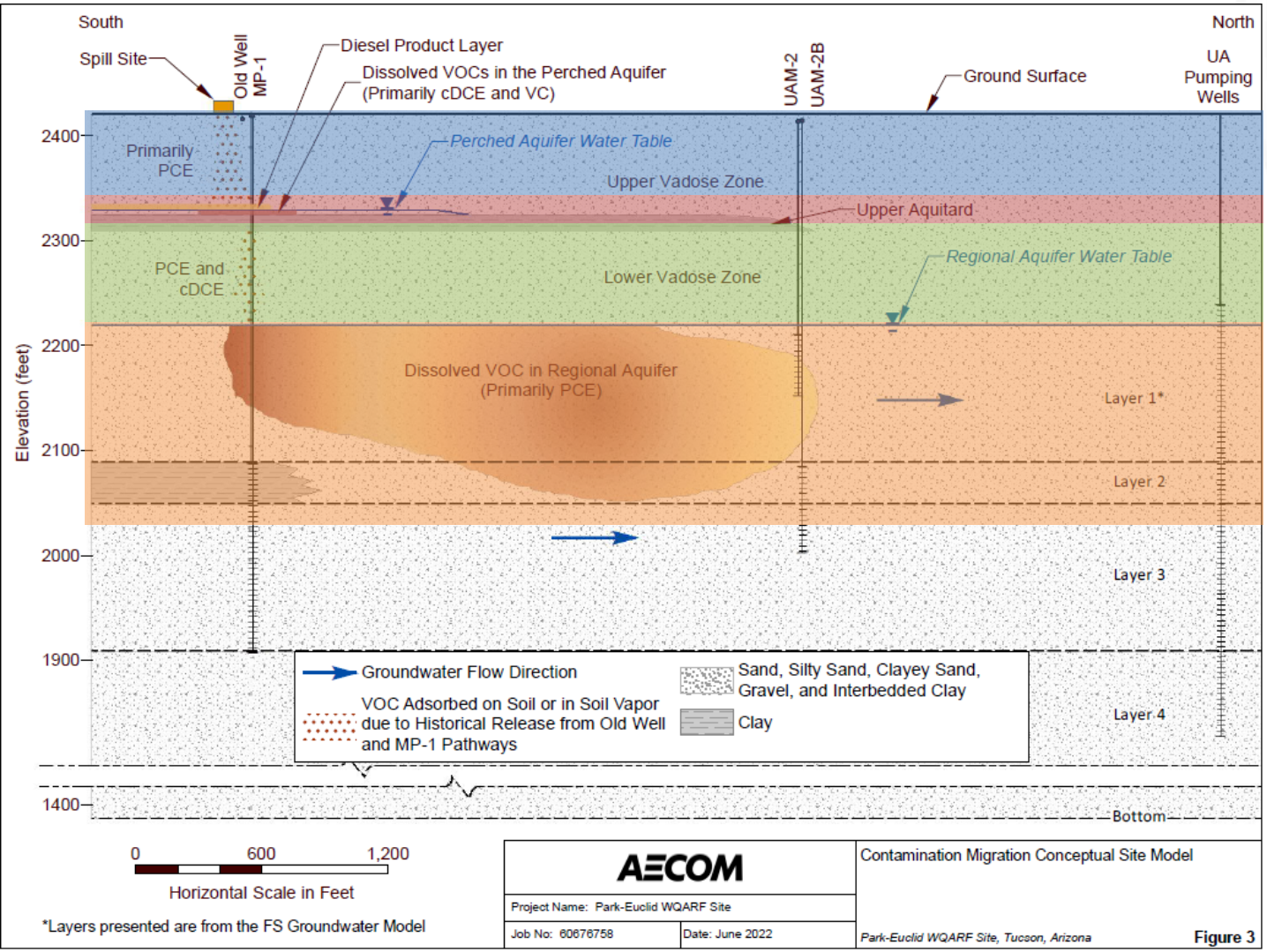
- Exposure Pathway:
  - Vapor intrusion to indoor air at source area
  - Groundwater from the Regional Aquifer

Record of Decision

The Record of Decision was issued in July 2021. The selected remedy is as follows:

- Monitored Natural Attenuation for:
  - Upper Vadose Zone
  - Perched Aquifer
  - Regional Aquifer
- Soil Vapor Extraction for:
  - Lower Vadose Zone
- Contingency for wellhead treatment if Tucson Water or University of Arizona wells become impacted by the groundwater plume.

Site Stratigraphic Zones



Upper Vadose Zone

Perched Aquifer

Lower Vadose Zone

Regional Aquifer

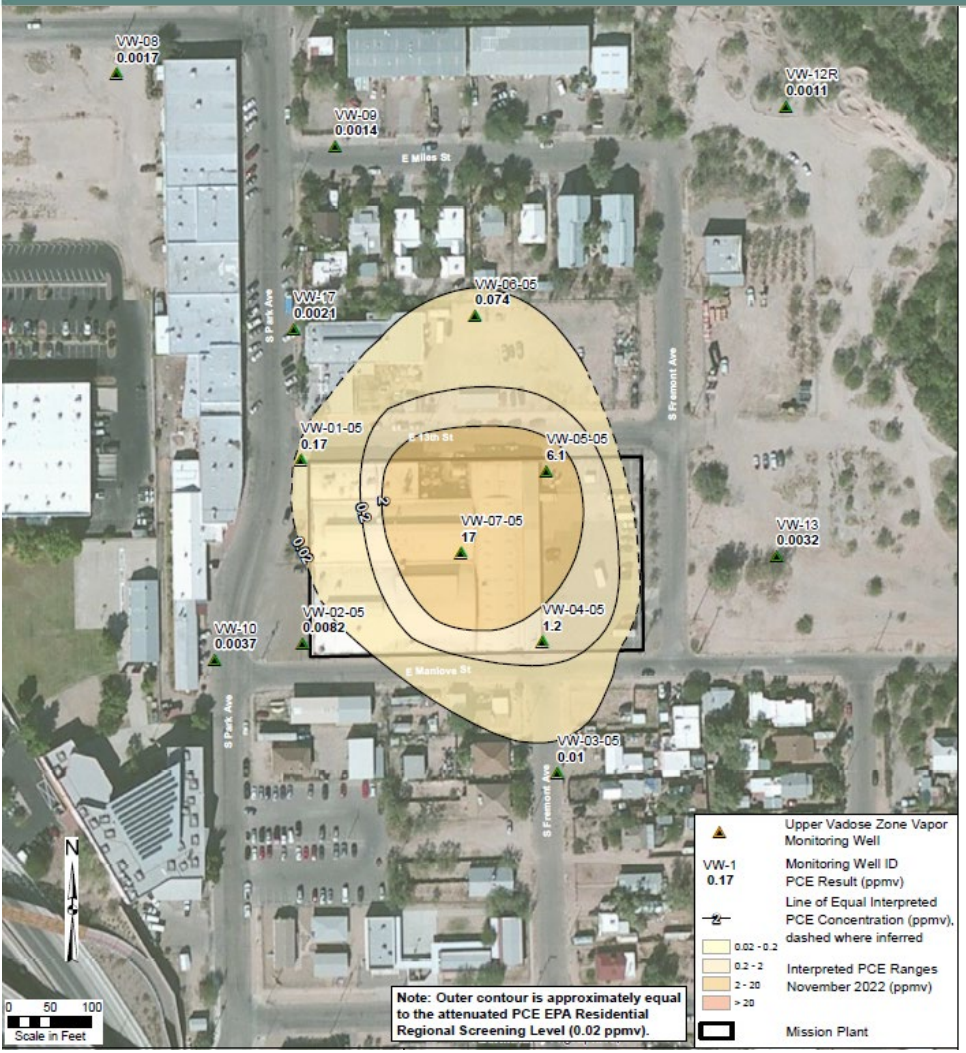
Operation & Maintenance Activities

- Monitoring activities:

Stratigraphic Zone	Selected Remedy	Monitoring Frequency
Upper Vadose Zone	Monitored Natural Attenuation (MNA)	Annually
Perched Aquifer	Monitored Natural Attenuation (MNA)	Annually
Lower Vadose Zone	Soil Vapor Extraction (SVE)	Semi-Annually
Regional Aquifer	Monitored Natural Attenuation (MNA)	Sitewide: Biennially Select wells: Annually

- The Soil Vapor Extraction system has been operating since March 2022.
  - Samples are currently collected monthly.

Upper Vadose Zone (Soil Vapor Monitoring)



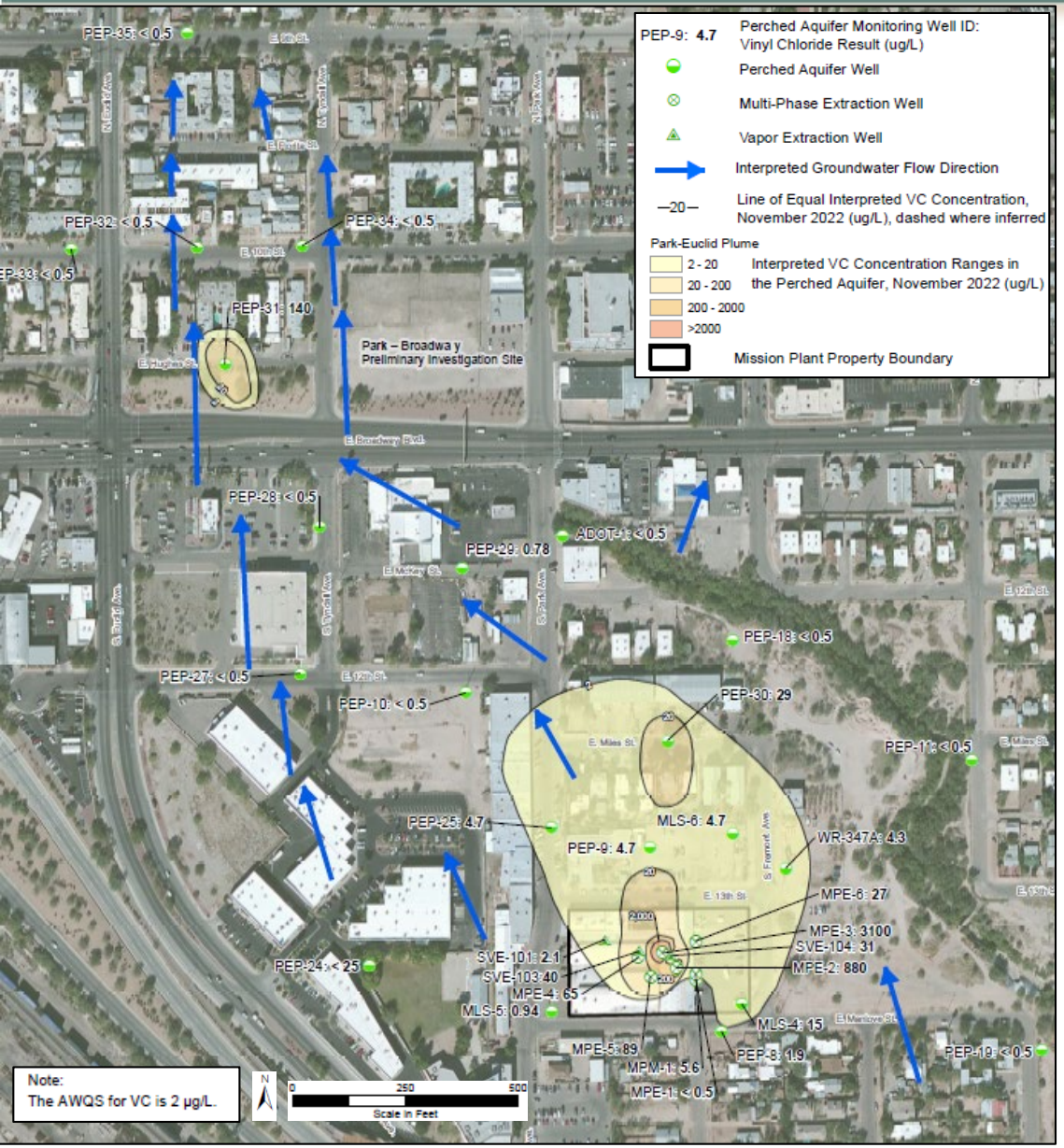
Monitoring Point	Depth (ft bgs)	PCE (ppm v) April 2020	PCE (ppm v) March 2022	PCE (ppm v) November 2022
VW-01	5	0.072	0.053	0.170
	30	0.10	0.098	0.160
	55	0.035	0.039	0.099
	85	0.0059	<0.11	0.520
VW-02	5	0.0036	0.0043	0.0082
	30	0.013		0.0072
	55	0.0016		0.038
	85	0.0022		0.028
VW-03	5	0.0072	0.0060	0.010
	30	0.014	0.020	0.020
	55	0.023	0.023	0.023
	85	0.082	0.075	0.058
VW-04	5	0.23	0.52	1.2
	30	4.0	3.0	4.6
	55	5.6	4.1	5.5
	85	0.38	0.54	0.38
VW-05	5	1.0	2.5	6.1
	30	7.3	13	12.0
	55	9.0	18	11
	85	19	18	5
VW-06	5	0.017	0.038	0.074
	30	0.078	0.11	0.13
	55	0.016	0.0046	0.23
	85	0.27	0.11	0.20
VW-07	5	52	28	17
	30	230	88	22
	55	120	73	34
	85	29	11	1
VW-08	5		0.0015	0.0017
VW-09	5		0.0018	0.0014
VW-10	5		0.0032	0.0037
VW-12R	5			0.0014
VW-13	5		0.0024	0.0032
VW-17	5		0.0036	0.0021

ppm v = parts per million by volume
ft bgs = feet below ground surface

Maximum COC Concentrations (ppm v)	
PCE	34
TCE	4.5
cDCE	6.5
tDCE	0.087
VC	0.59

- No COCs exceeded the calculated Arizona Soil Remediation Level (SRL) in November 2022.

Perched Aquifer (Groundwater Monitoring)

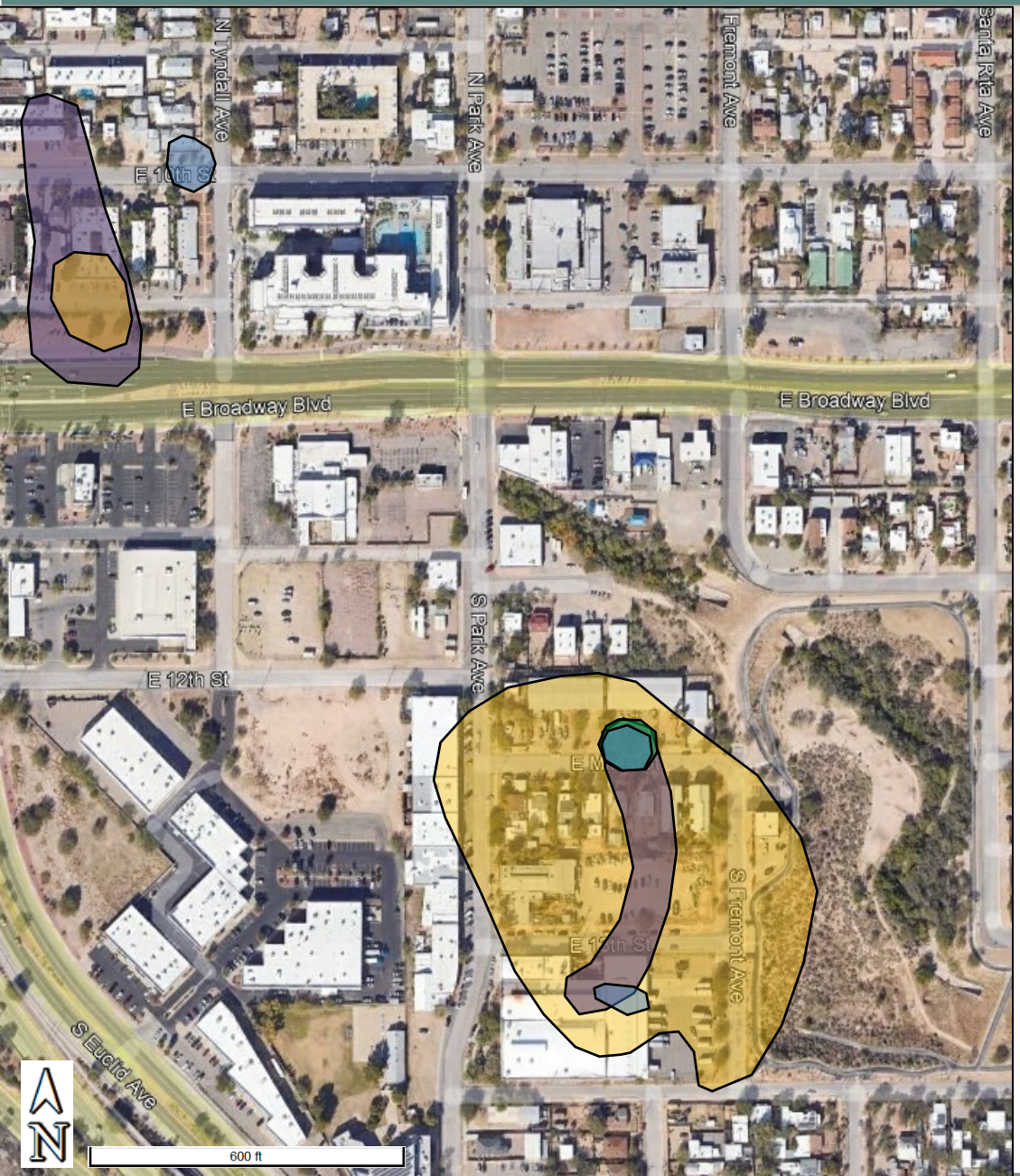


Monitoring Point	VC (µg/L)		
	April 2020	March 2022	November 2022
MLS-4	37	15	15
MLS-5	16	1.5	0.94
MLS-6	5.3	10	4.7
MPE-1	7.3	14	<0.50
MPE-3	7,700	12,000	3,100
MPE-4	4,300	530	65
MPE-5	8,700	440	89
MPE-6	47	18	27
MPM-1	3.7	2.9	5.6
PEP-10	330	4.7	<0.50
PEP-25	1,100	15	4.7
PEP-29	4.2	4.1	0.78
PEP-30	4.5	59	29
PEP-31	180	450	140
PEP-32	<0.50	1.5	<0.50
PEP-8	3.4	1.7	1.9
PEP-9	6.6	15	4.7
SVE-101	3.8	3.3	2.1
SVE-103	82	79	40
SVE-104	4,900	4,100	31
WR-347A	5.0	6.0	4.3

µg/L = micrograms per liter

- Most PCE and TCE have degraded and are below the Aquifer Water Quality Standard (AWQS).
- The average VC concentration has decreased by 676 µg/L between March and November 2022.
- The average cDCE concentration has decreased by 1,170 µg/L between March and November 2022

Perched Aquifer Summary

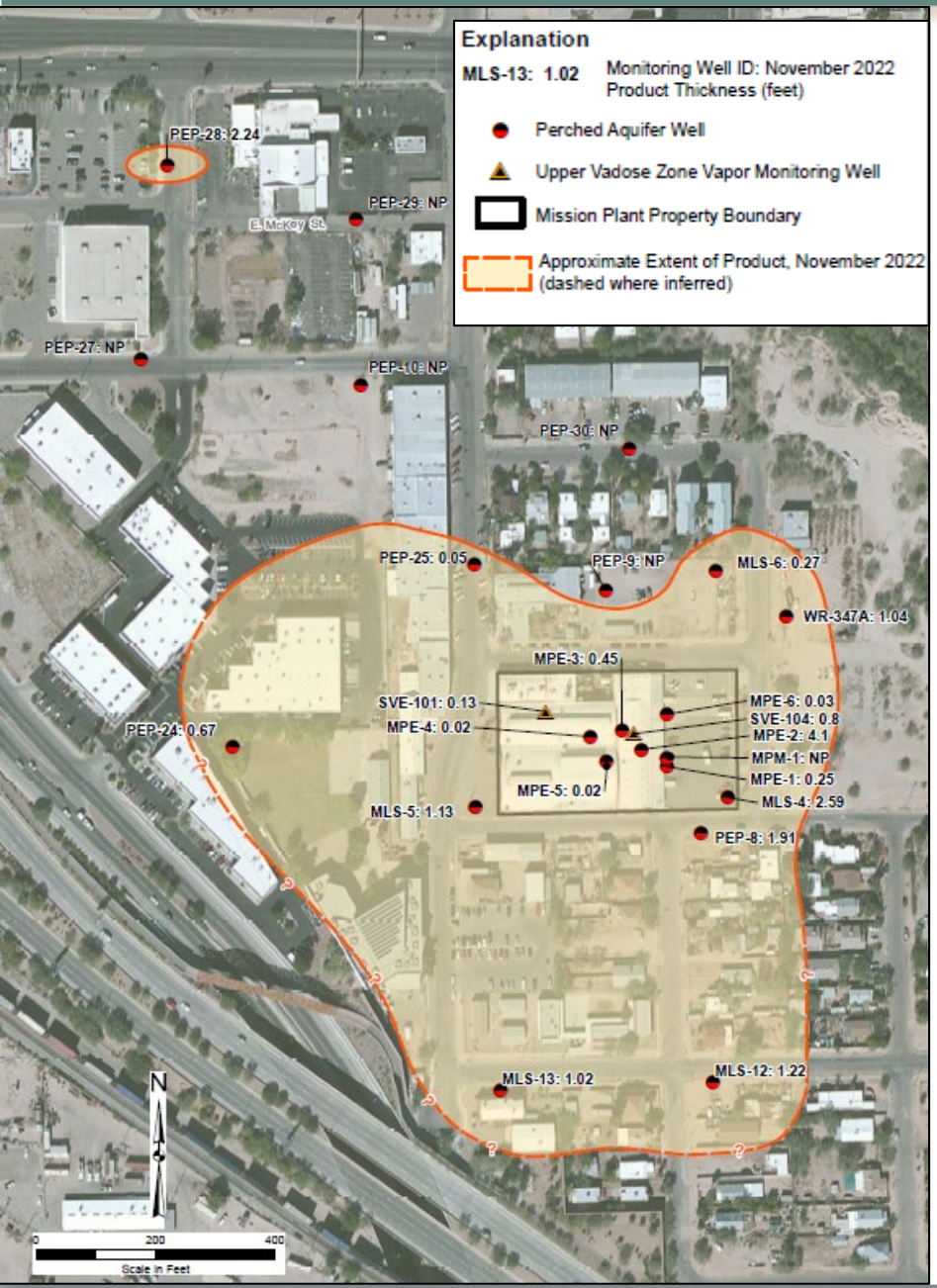


Legend

- PCE
- TCE
- cDCE
- VC

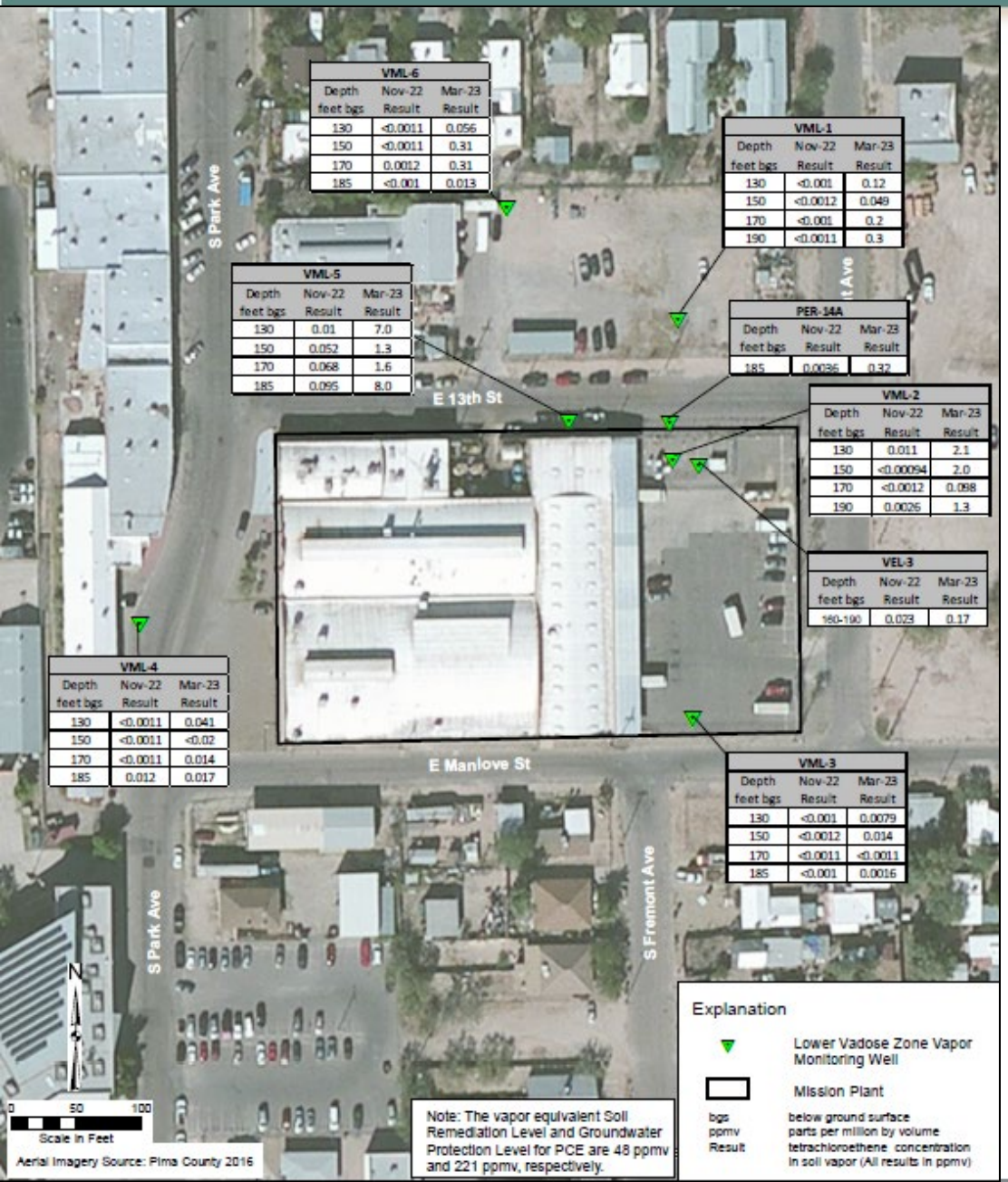
COC	2022 Maximum Concentration (µg/L)	AWQS (µg/L)
PCE	11	5
TCE	5.0	5
cDCE	12,000	70
tDCE	50	100
VC	3,100	2

Diesel Product in Perched Aquifer



- Free product diesel fuel (light non-aqueous phase liquid [LNAPL]) overlays the Perched Aquifer.
- Originates from an offsite petroleum release.
- The diesel product contains dissolved COCs.
- Additional questions regarding the LNAPL should be directed to ADEQ's Underground Storage Tank Section:
  - Joey Kiker (kiker.joey@azdeq.gov)

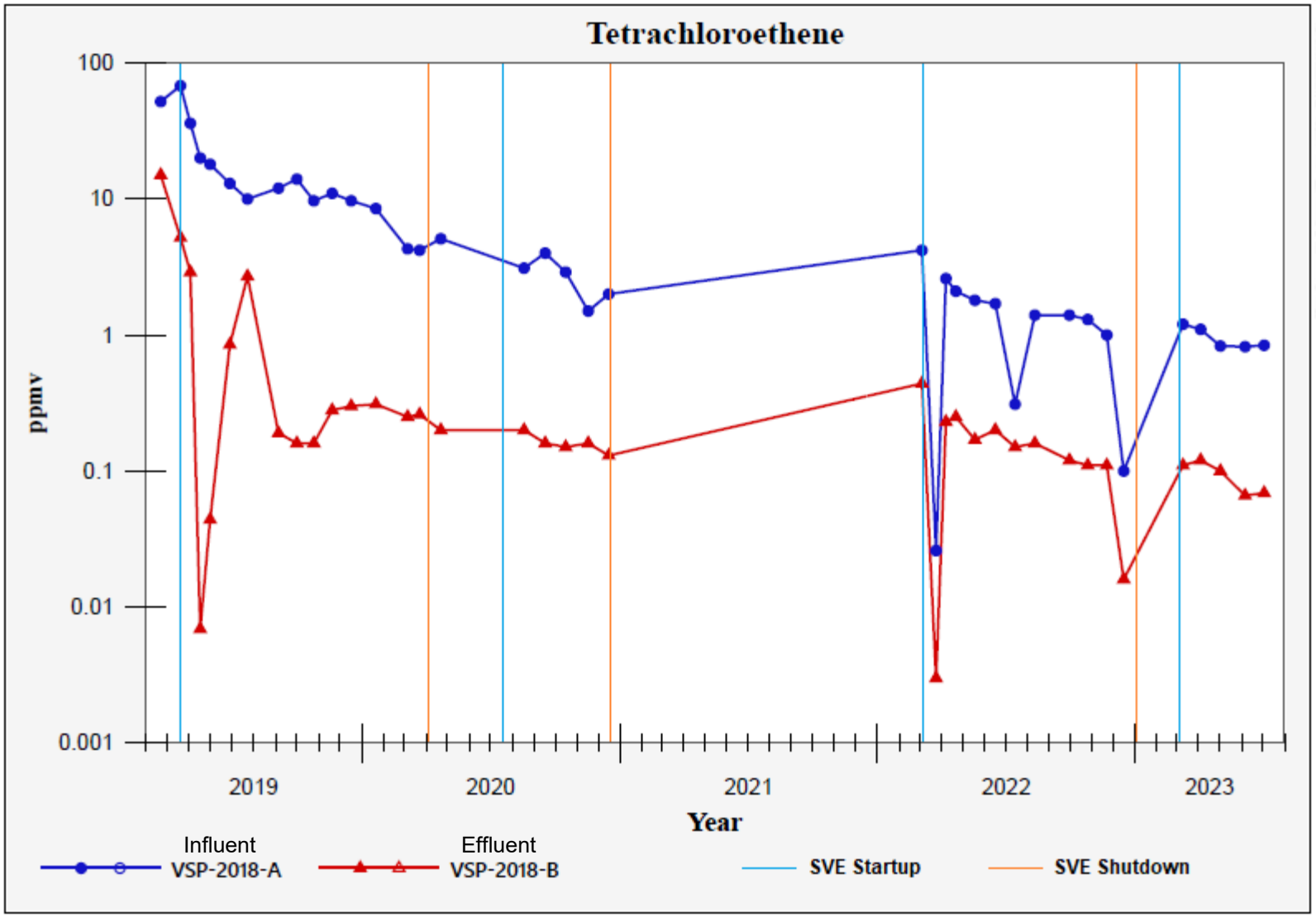
Lower Vadose Zone (Soil Vapor Monitoring)



Monitoring Point	Depth (ft bgs)	PCE (ppm v) February 2022 (Rebound Monitoring)	May 2022	November 2022	March 2023 (Rebound Monitoring)
VML-1	130	0.15	0.0015	<0.0010	0.12
	150	0.1	<0.0011	<0.0012	0.049
	170	0.07	<0.0013	<0.0010	0.20
	190	0.76	<0.0011	<0.0011	0.30
VML-2	130	11	0.24	0.011	2.1
	150	8.8	0.0021	<0.00094	2.0
	170	4.6	0.0034	<0.0012	0.098
	190	6.9	0.0022	0.0026	1.3
VML-3	130	1.7	0.0011	<0.0010	0.0079
	150	0.95	0.0011	<0.0012	0.014
	170	0.36	<0.0011	<0.0011	<0.0011
	185	0.5	<0.0011	<0.0010	0.0016
VML-4	130	0.58	0.0011	<0.0011	0.041
	150	0.31	0.0014	<0.0011	0.025
	170	0.15	0.0015	<0.0011	0.014
	185	0.17	0.0015	0.012	0.017
VML-5	130	0.18	<0.0011	0.010	7.0
	150	1.1	0.0035	0.052	1.3
	170	8	0.0017	0.068	1.6
	185	2.1	0.0022	0.095	8.0
VML-6	130	0.24	<0.0011	<0.0011	0.056
	150	0.66	0.0015	<0.0011	0.31
	170	0.49	<0.0011	0.0012	0.31
	185	0.72	<0.0012	<0.0010	0.013

- 129 pounds of the Contaminants of Concern have been removed since March 2022
- Concentrations remain on a downward trend between rebound monitoring periods.

PCE in SVE System Influent & Effluent



Regional Aquifer (Groundwater Monitoring)

Monitoring Point	PCE (µg/L) April 2020	March 2022	November 2022	March 2023
MLR-3	4.2	3.7		
MLR-7	47	31	37	29
PBR-10	4.1	4.2		
PER-14A	15	5.2	11.0	8.0
PER-21	3.4	4.2		
PER-23	24	6.6		
PER-25	18	11		
PER-26	5.7	0.56		
PER-28 - 220	4.0	6.7		
PER-28 - 250	11	6.7		
PER-28 - 280	17	7.4		
PER-31 - 295	3.3	2.0		
PER-31 - 317.5	3.2	2.4		
UAM-1	1.4	0.68	1.40	
UAM-2	3.3	2.9	4.4	

- No change to the plume map in 2023.
- PCE is the only COC above AWQS.
- The highest COC concentration remains just downgradient from the source area at well MLR-7, which is sampled semi-annually.

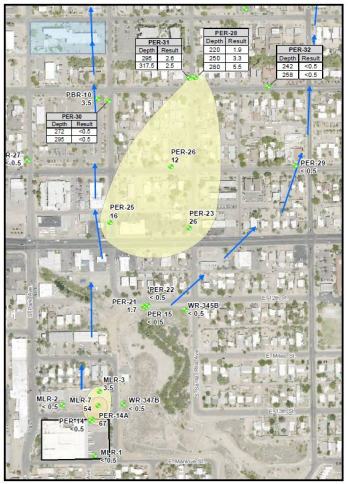
Regional Aquifer Plume Map History

2016

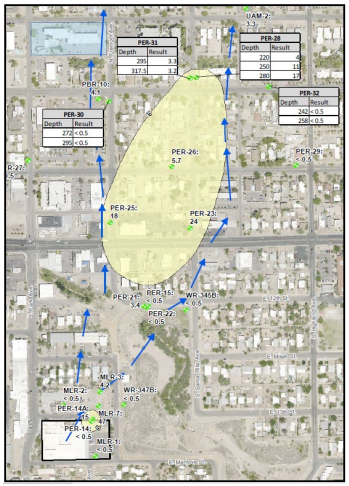
2017

2018

2019



2020



2022

Activities for Fiscal Year 2024

- Annual sampling occurred in November 2023.
  - This included a full Regional Aquifer monitoring event.
  - Second semi-annual round of Lower Vadose Zone occurred in February 2024.
- The Lower Vadose Zone SVE system will continue to operate.
  - Routine maintenance and monitoring was performed in January and February.
- The Upper Vadose Zone shallow vapor well VW-12R, previously located in the Arroyo Chico flood retention basin, will be replaced in early May.

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