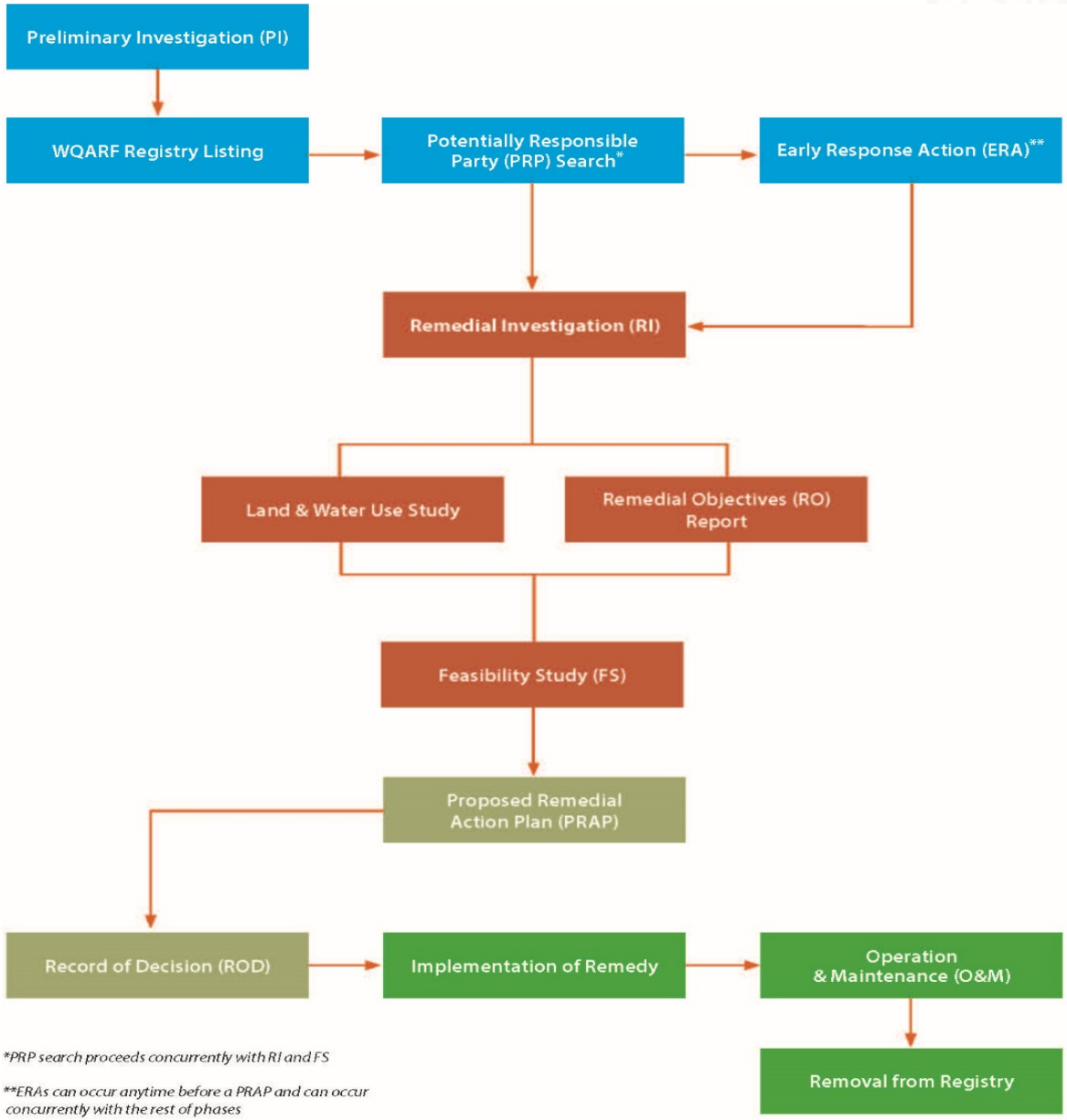
Central & Camelback Water Quality Assurance Revolving Fund (WQARF) Registry Site Community Advisory Board (CAB) Presentation

March 21, 2018

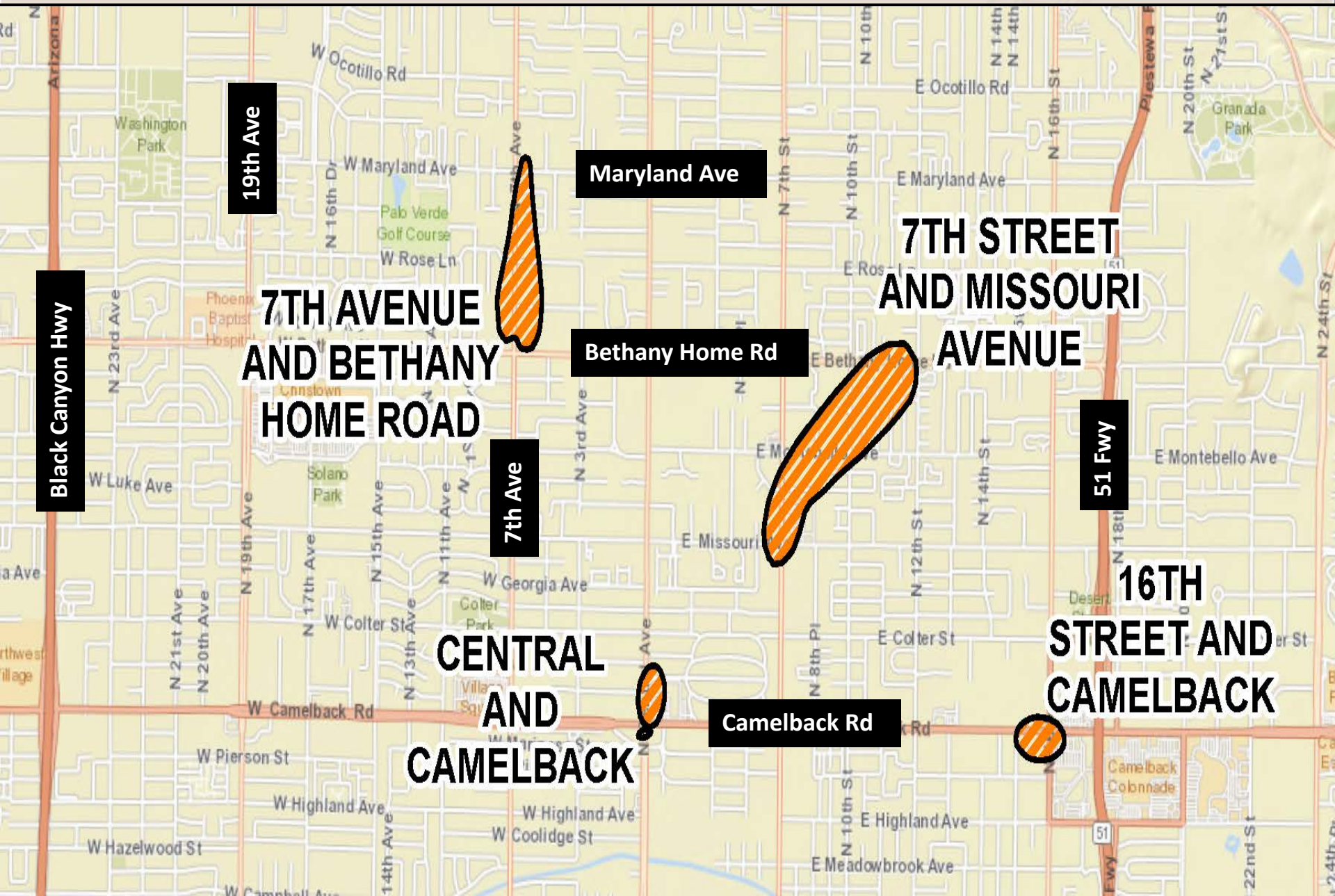
Wendy Flood, Community Involvement Coordinator

Kyle Johnson, Project Manager

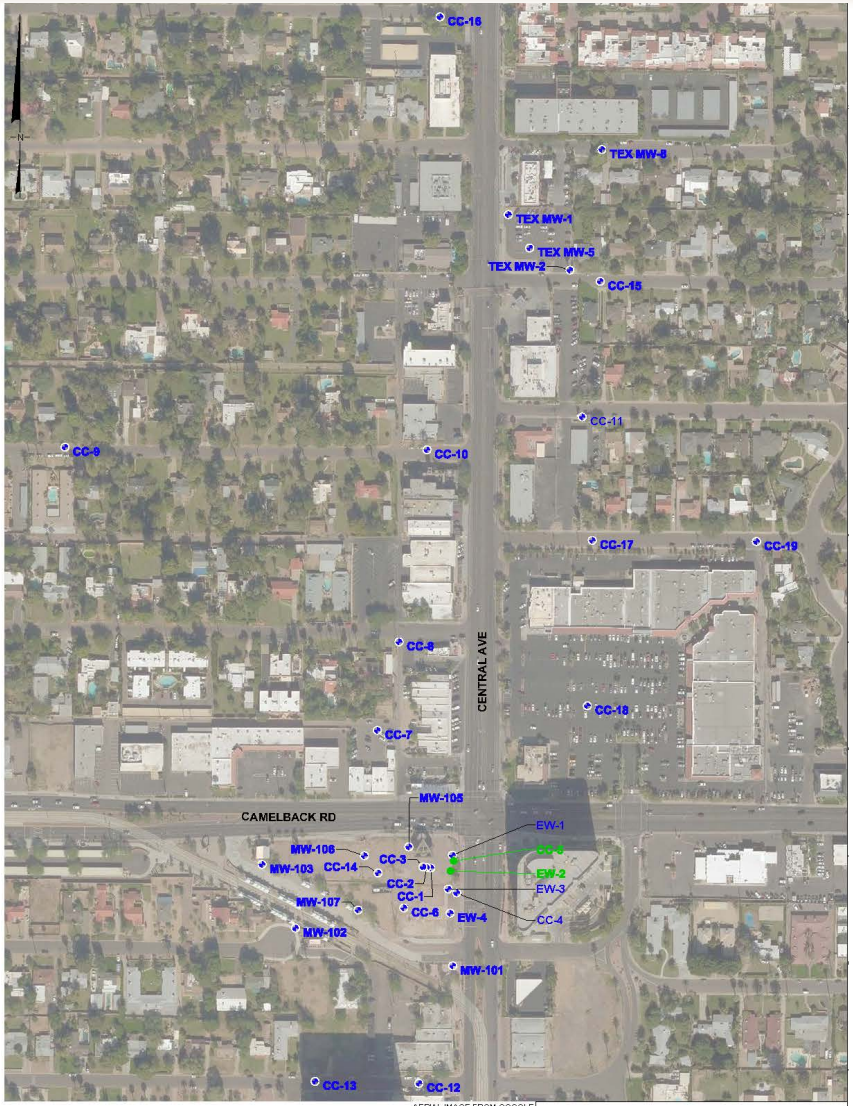
ADEQ
Arizona Department of Environmental Quality


Preliminary Investigation (PI)
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

Central Phoenix WQARF Sites



Central and Camelback



NOTES
Monitor Well
Extraction Well

200' 100' 0 200 Feet

GROUNDWATER MONITOR WELL NETWORK
2016

Central and Camelback WQARF Site
Phoenix, Arizona

Geosyntec consultants

Figure 2

Phoenix, AZ | May 2016

Central and Camelback

Recent Activities

- Drafting the Record of Decision (ROD).
- Conducting enhanced in situ bioremediation (EISB) pilot test (Nov. 2017 – March 2018).
- Pump and treat groundwater system temporarily shutdown for EISB pilot test.
- The groundwater system has removed approximately 296.6 lbs. of PCE from groundwater as of December 2017.

Recent Activities

- The groundwater system was run for short durations in December, January, February and March to keep the carbon filters wetted. Permit compliance samples were collected during the short periods of operation.
- Groundwater samples were collected monthly from groundwater extraction wells EW-2 and CC-5 and select dewatering wells located in southeast corner of Central & Camelback to track progress of EISB pilot test.
- Some success in reducing PCE concentrations was experienced at extraction wells EW-2 and CC-5. However, the northern PCE plume has migrated to the dewatering wells at the southeast corner.

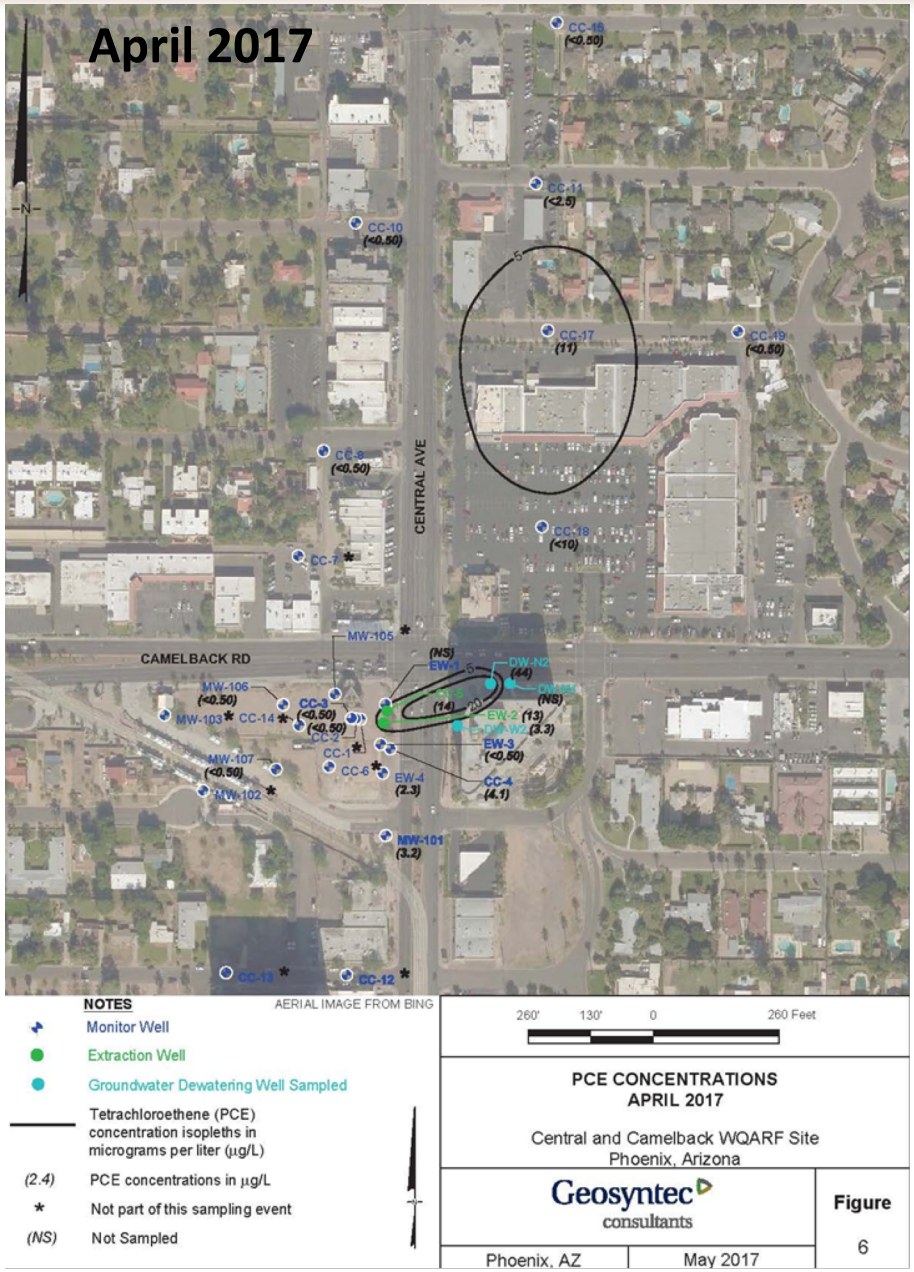
Recent Activities

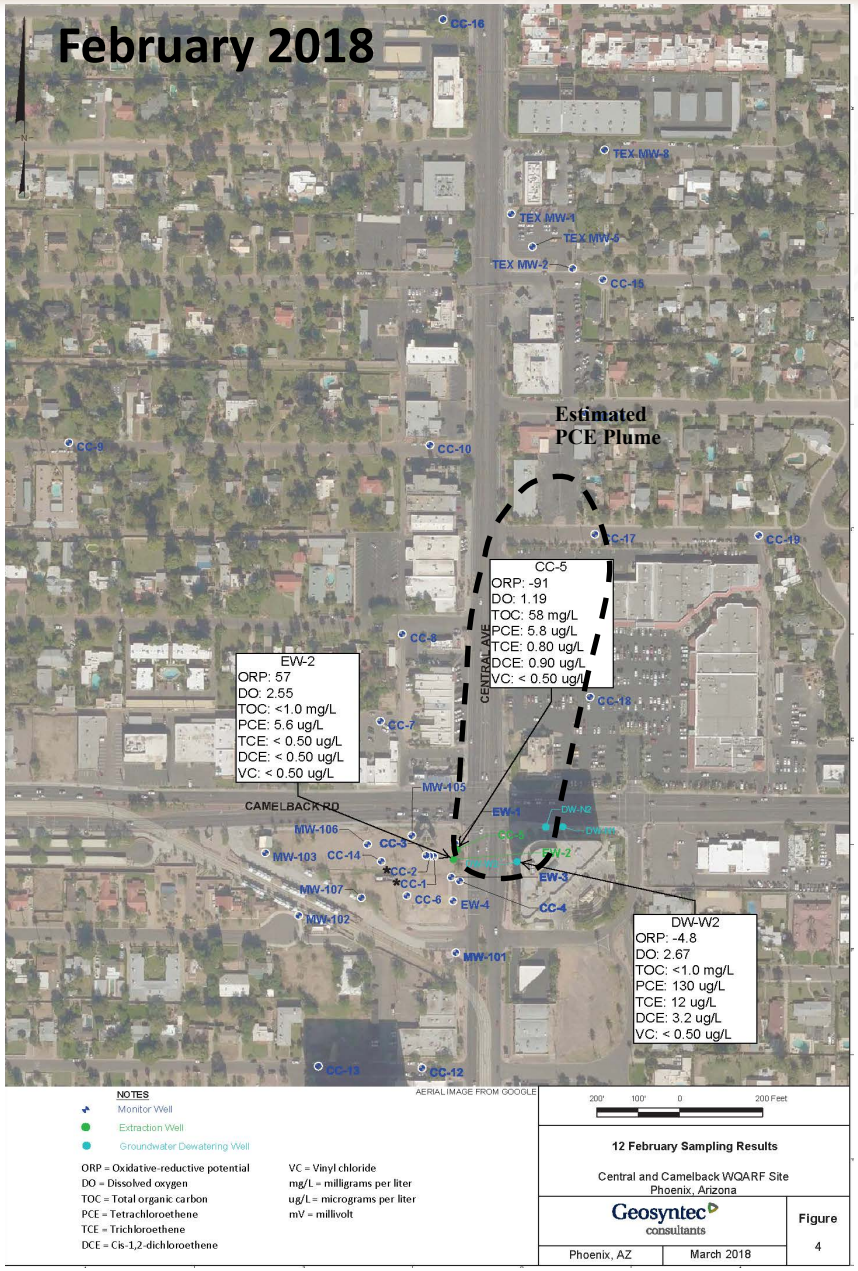
- Currently only extraction wells CC-5 and EW-2 are operating and are sampled
  - Extraction Well EW-4 was shutdown on January 20, 2009
  - Extraction Well EW-3 was shutdown on May 6, 2009
  - Extraction Well EW-2 was shutdown on May 20, 2009 and restarted on October 29, 2009
  - Extraction Well EW-1 was shutdown on March 13, 2013

PCE Concentrations in Extraction Well Samples

Well Number	Sept 14, 2016	Dec 5, 2016	March 20, 2017	June 1, 2017	Dec 13, 2017	Dec 18, 2017	Jan 8, 2018	Feb 12, 2018
CC-5	26	16	4.2	14	1.7	3.6	4.4	5.8
EW-1	NS	NS	NS	NS	NS	NS	NS	NS
EW-2	3.1	14	6.3	13	1.2	4.6	4.7	5.6
DW-W2	NS	NS	NS	NS	99	110	130	130

Recent Activities – PCE in Groundwater





Recent Activities – TCE in Groundwater

ADEQ Arizona Department of Environmental Quality

NOTES AERIAL IMAGE FROM BING

- Monitor Well
- Extraction Well
- Groundwater Dewatering Well Sampled
- Trichloroethene (TCE) concentration isopleths in micrograms per liter (µg/L)
- (2.4) TCE concentrations in µg/L
- * Not part of this sampling event
- J Estimated concentration below laboratory minimum reporting level but above method detection limit
- (NS) Not Sampled

260' 130' 0 260 Feet

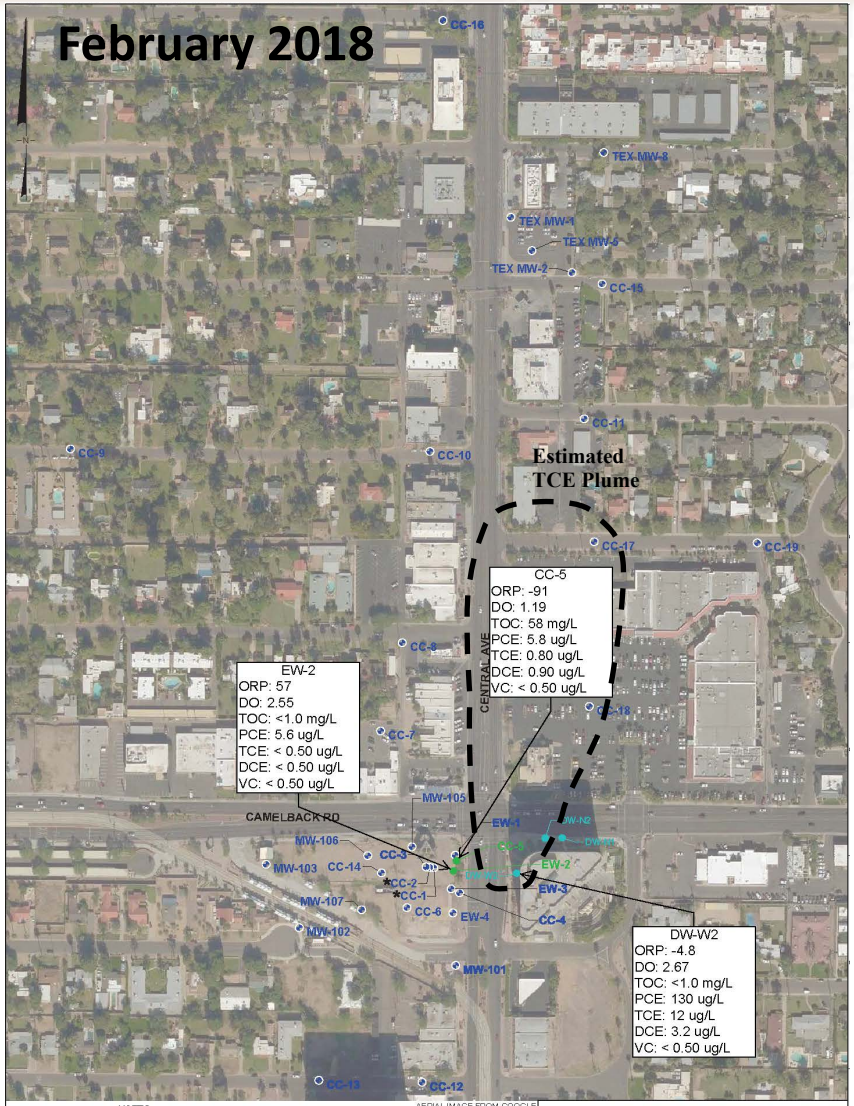
TCE CONCENTRATIONS APRIL 2017

Central and Camelback WQARF Site
Phoenix, Arizona

Geosyntec consultants

Figure 7

Phoenix, AZ | May 2017



NOTES AERIAL IMAGE FROM GOOGLE

- Monitor Well
- Extraction Well
- Groundwater Dewatering Well

ORP = Oxidative-reductive potential
DO = Dissolved oxygen
TOC = Total organic carbon
PCE = Tetrachloroethene
TCE = Trichloroethene
DCE = Cis-1,2-dichloroethene
VC = Vinyl chloride
mg/L = milligrams per liter
ug/L = micrograms per liter
mV = millivolt

200' 100' 0 200 Feet

12 February Sampling Results

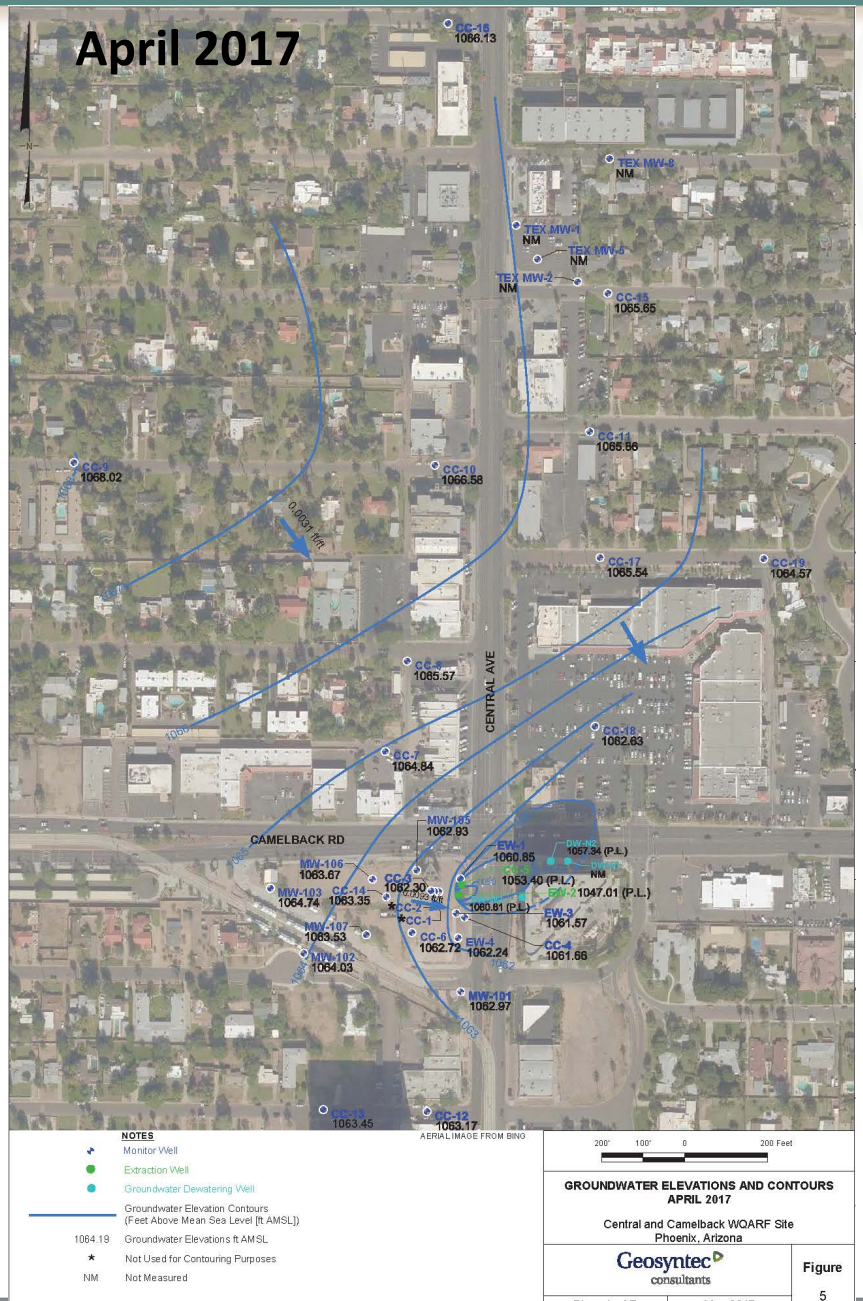
Central and Camelback WQARF Site
Phoenix, Arizona

Geosyntec consultants

Figure 4

Phoenix, AZ | March 2018

Recent Activities – Groundwater Flow



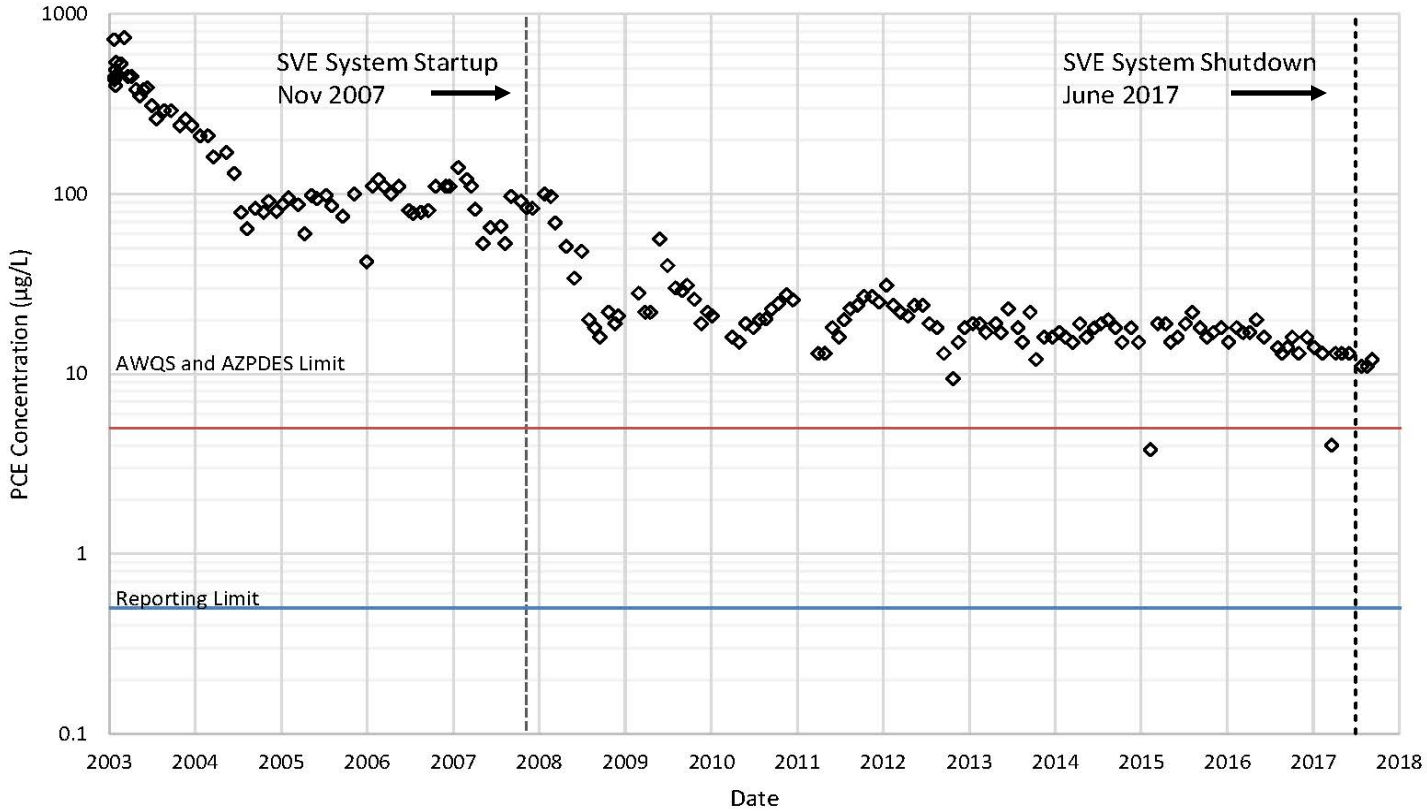
Operation & Maintenance Statistics for the GW Treatment System

Quarter	Gallons Treated	Percent Operational	VOC/PCE Removed (Lbs.)
2nd Qtr 2017	3,537,900	92.7%	0.56/0.39
3rd Qtr 2017	3,407,000	92.2%	0.40/0.32
4th Qtr 2017	12,000	0.4%	0.00/0.00
1st Qtr 2018	33,100	1.3%	0.00/0.00

System Influent Concentrations

Analyte	Range 1st & 2nd Quarter 2003	September 2017	December 2017	AWQS
PCE	350 - 740	12	-	5
TCE	9.7 – 16	1.2	-	5
Cis-1,2-DCE	8.5 - 20	<0.50	-	70

Groundwater Influent Data



Notes:
Aquifer Water Quality Standard (AWQS) is 5 µg/L
Arizona Pollutant Discharge Elimination System (AZPDES) Permit Limit is 5 µg/L

PCE Concentrations in Groundwater Influent Samples
Central and Camelback WQARF Site, Phoenix, Arizona

Geosyntec consultants

Phoenix, AZ | October 2017

Figure 3

Soil Vapor Extraction Summary

- The soil vapor extraction (SVE) system was shutdown end of June 2017. PCE concentrations had become asymptotic. In May 2017, PCE was detected at the influent at a concentration of 1 µg/L. Averaging approximately 0.02 lb. PCE daily removal rate.

- Plan to do rebound testing soon to be sure system can be decommissioned.

- The SVE system has removed approximately 6,830 lbs. of PCE from soil as of June 2017.

Future Planned Activities

- Finalize Record of Descision.
- Continue operation of the groundwater remediation and treatment system.
- Conduct targeted enhanced in-situ bioremediation (EISB) injection in vicinity of extraction well CC-5 and possibly other wells as a contingency (pending pilot test results).
- Continue groundwater monitoring and sampling at select monitor wells.
- Conduct rebound testing at the SVE system and if soil vapor concentrations still meet remedial objectives, decommission system.
- Decommission groundwater remediation and treatment system after ROs are met.
- Abandon wells after ROs have been met.

Questions?

Contacts

Wendy Flood, Community Involvement Coordinator
Remedial Projects Section
wv1@azdeq.gov
(602) 771-4410, 1-800-234-5677 ext 7714410

Kyle Johnson, Project Manager
Remedial Projects Unit
kj5@azdeq.gov
(602) 771-8704, 1-800-234-5677 ext. 771-8704

Scott Green, Unit Manager
Remedial Projects Unit
srg@azdeq.gov
(602) 771-1612, 1-800-234-5677 ext. 771-1612