

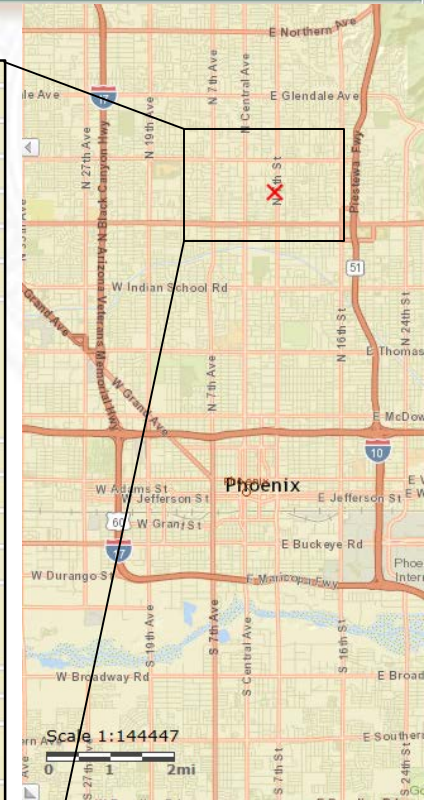
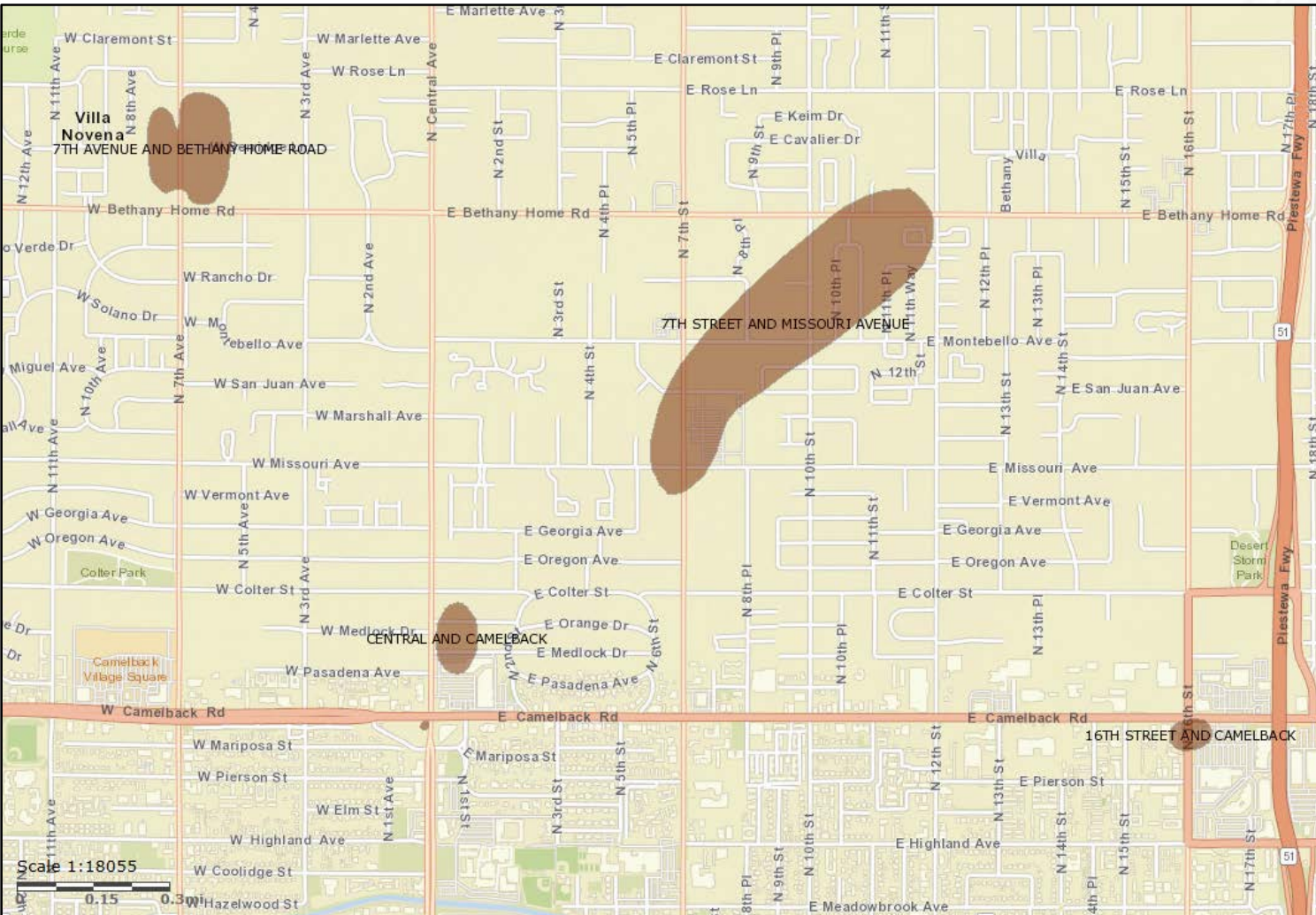


Draft RI Report  
7th Street and Missouri Avenue Water  
Quality Assurance Revolving Fund Site

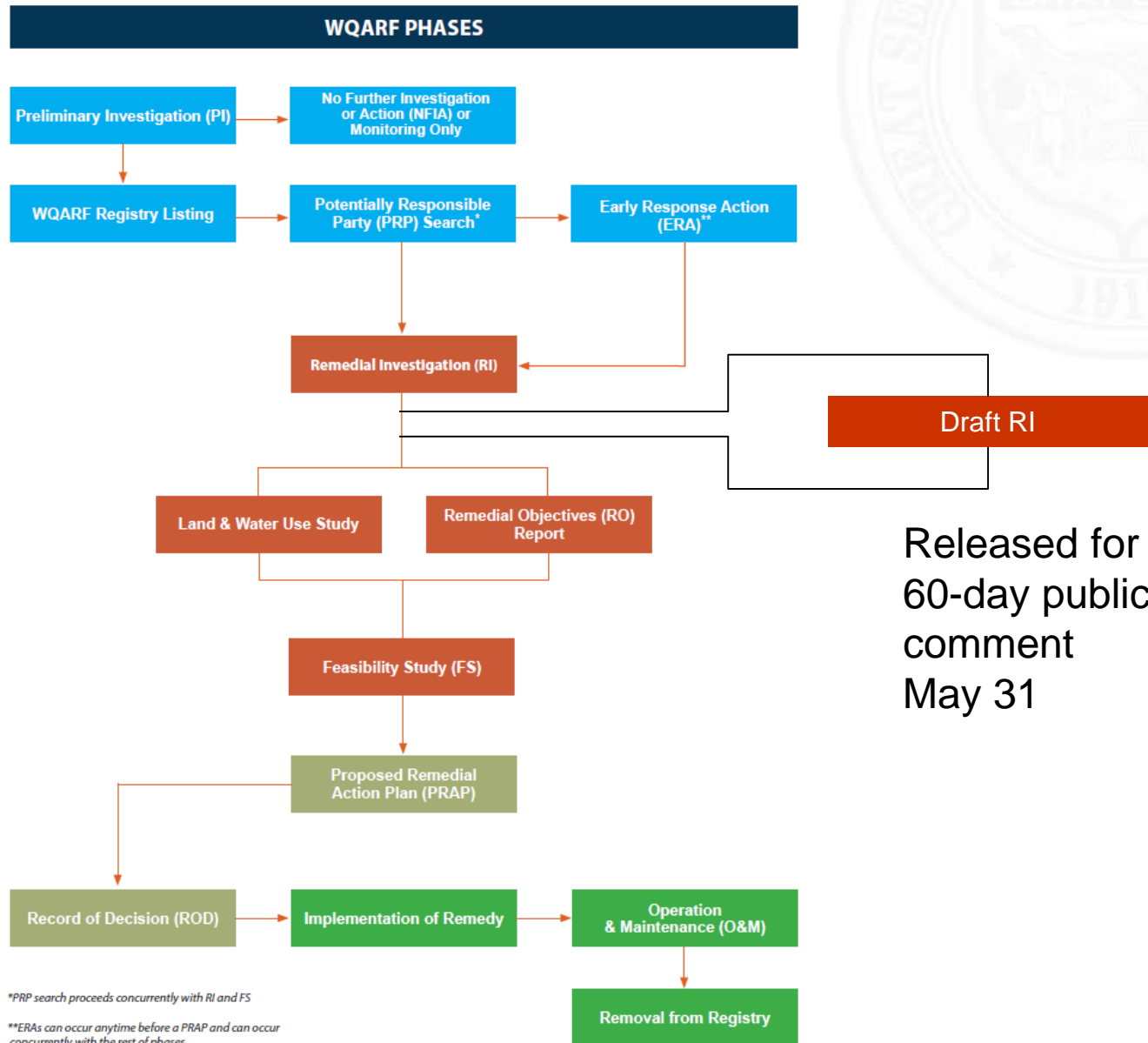
Central Phoenix CAB Meeting  
23 July 2018



# 7th Street and Missouri Avenue Site location



# 7th Street and Missouri Avenue Remedial Objectives



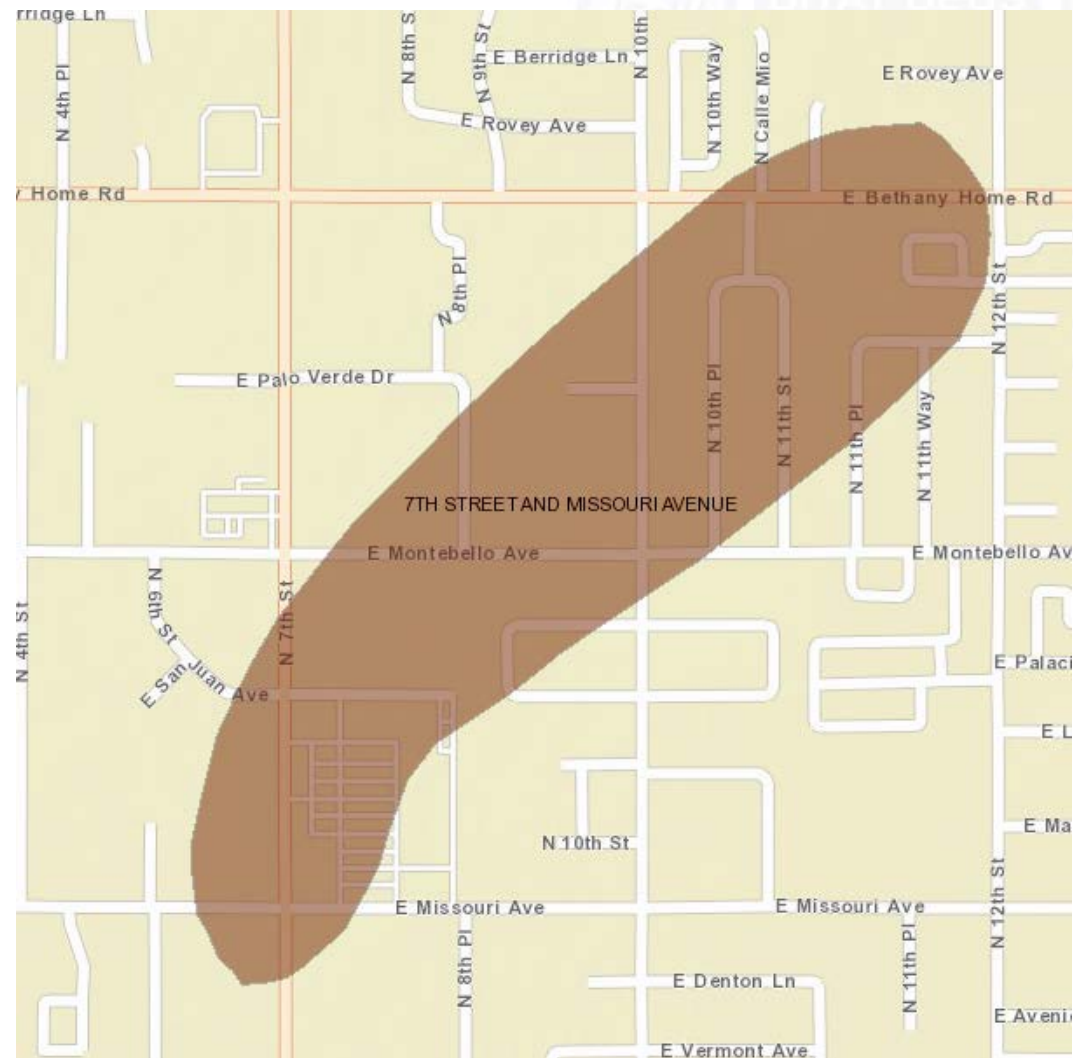
Released for  
60-day public  
comment  
May 31

\*PRP search proceeds concurrently with RI and FS

\*\*ERAs can occur anytime before a PRAP and can occur concurrently with the rest of phases

# 7th Street and Missouri Avenue Remedial Investigation – Background

- Site discovered during Leaking Underground Storage Tank (LUST) investigation
- Preliminary Investigation(PI) identified some potential sources
  - Fashion Cleaners – went into the Voluntary Remediation Program (VRP)
  - Area southwest of 7<sup>th</sup> St and Missouri Ave – Former Kino Drapery Cleaners
- Remedial Investigation started August 2016

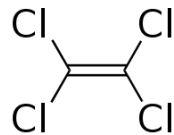


## Purpose of an RI

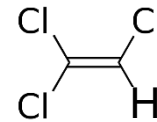
- Collect data needed to understand the site to select the best possible remediation in the feasibility study (FS)
  - Understand the nature and extent of contamination
  - Identify current and potential impacts to public health, welfare and the environment
  - Identify the current and reasonably foreseeable uses of land and waters of the state

- Characteristics of contaminants

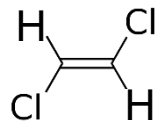
- Tetrachloroethene (PCE)



- Trichloroethene (TCE)

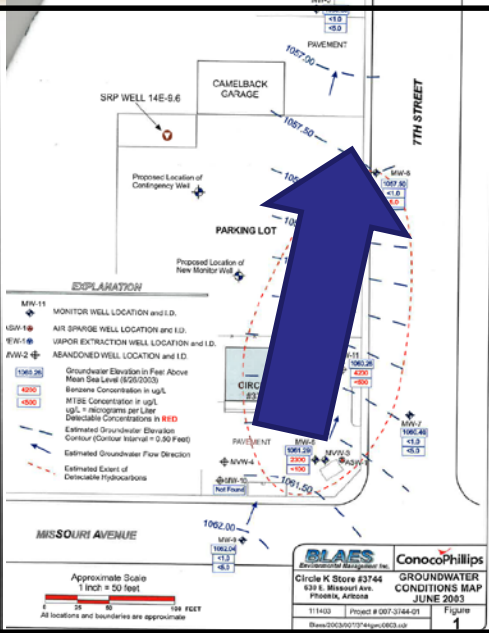
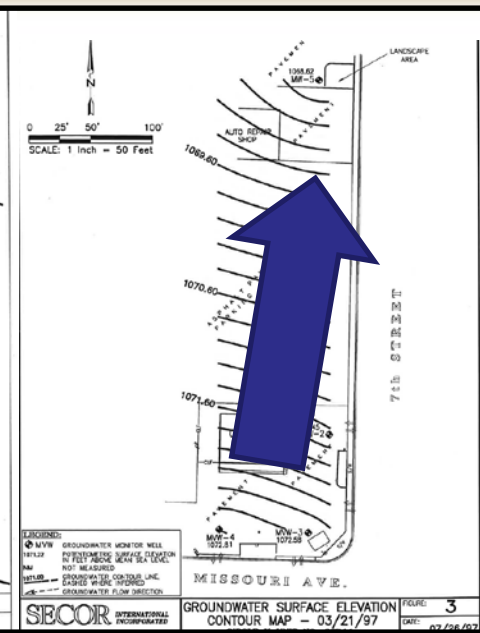
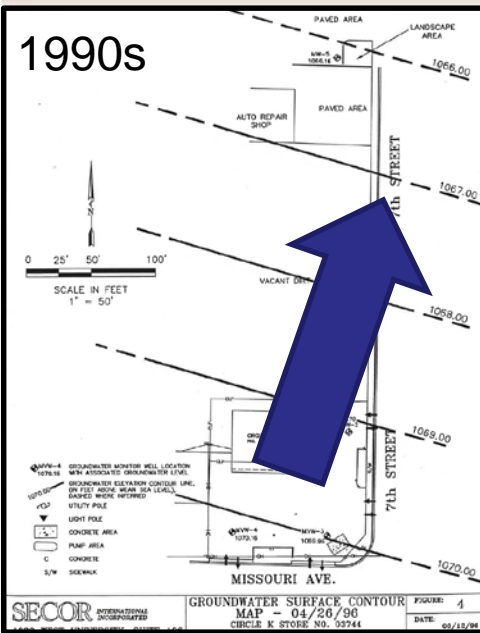


- 1,2-*cis*-dichloroethene (1,2-*cis*DCE)

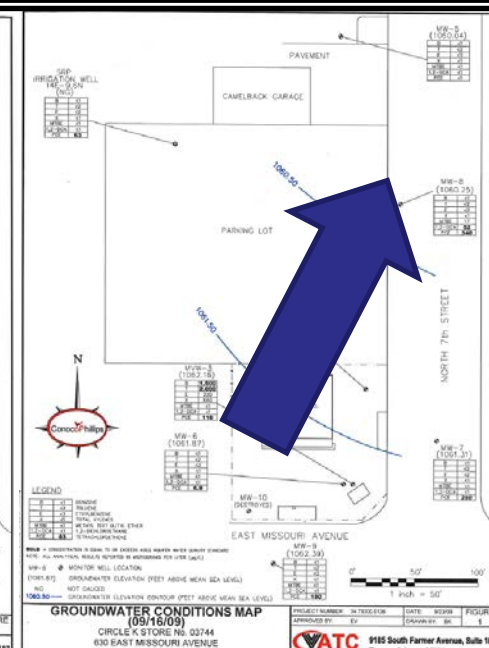
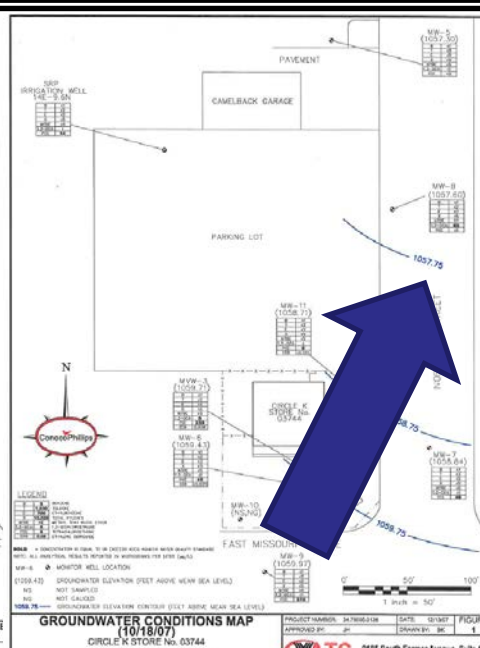
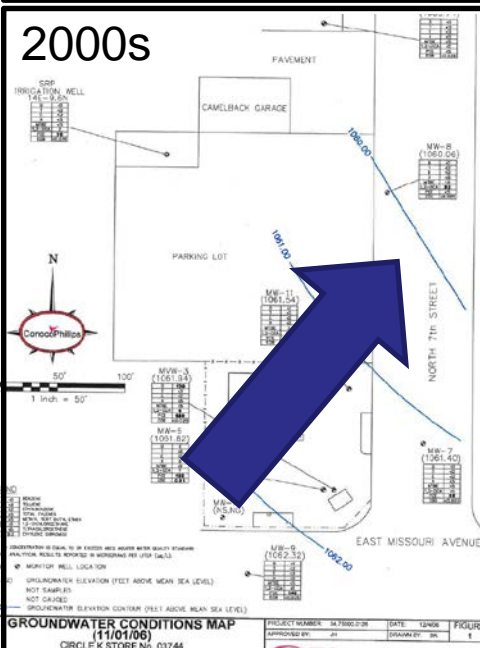


- PCE often used in dry cleaning
- TCE is a breakdown product of PCE; also used as a solvent
- 1,2-*cis*DCE is a breakdown product of PCE/TCE
- Liquids that is denser than water – i.e. like an oil that sinks instead of floats
- Volatile – readily evaporates when in contact with air

# 7th Street and Missouri Avenue Remedial Investigation Summary – Site Characteristics

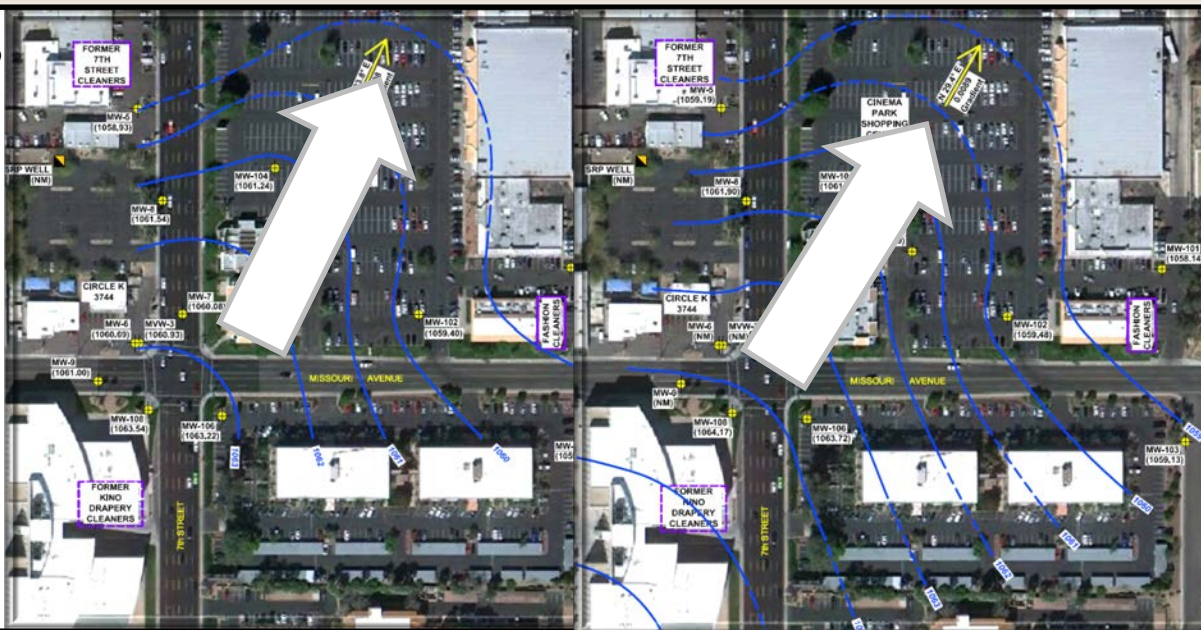


Groundwater flow direction over time



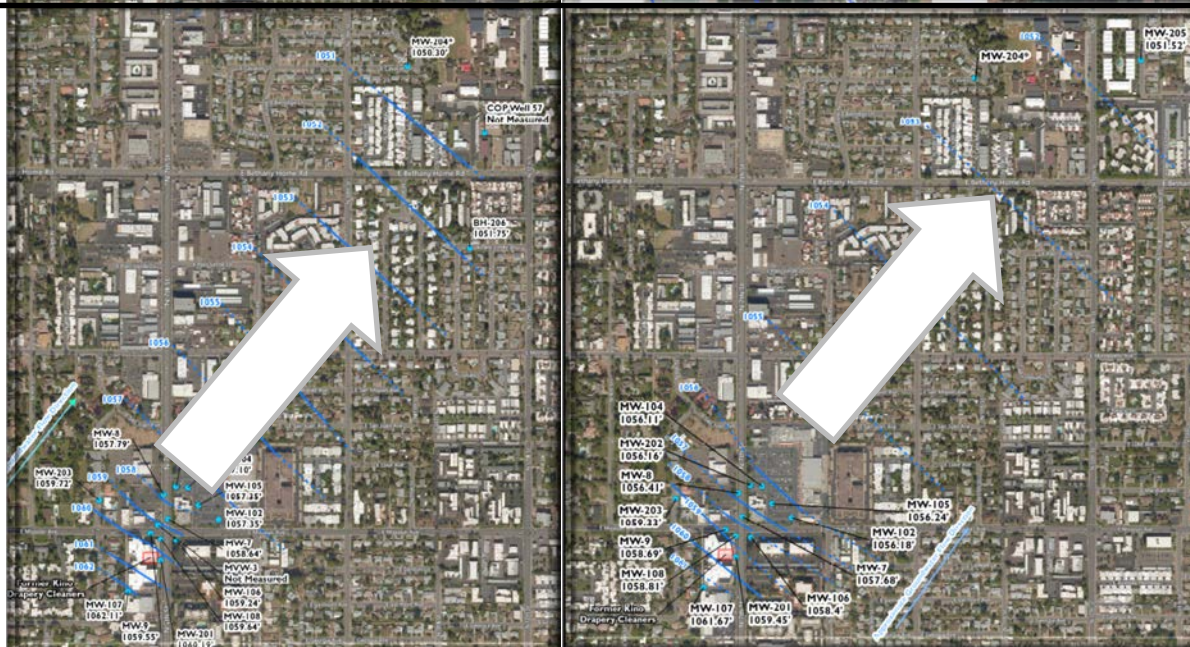
# 7th Street and Missouri Avenue Remedial Investigation Summary – Site Characteristics

2013



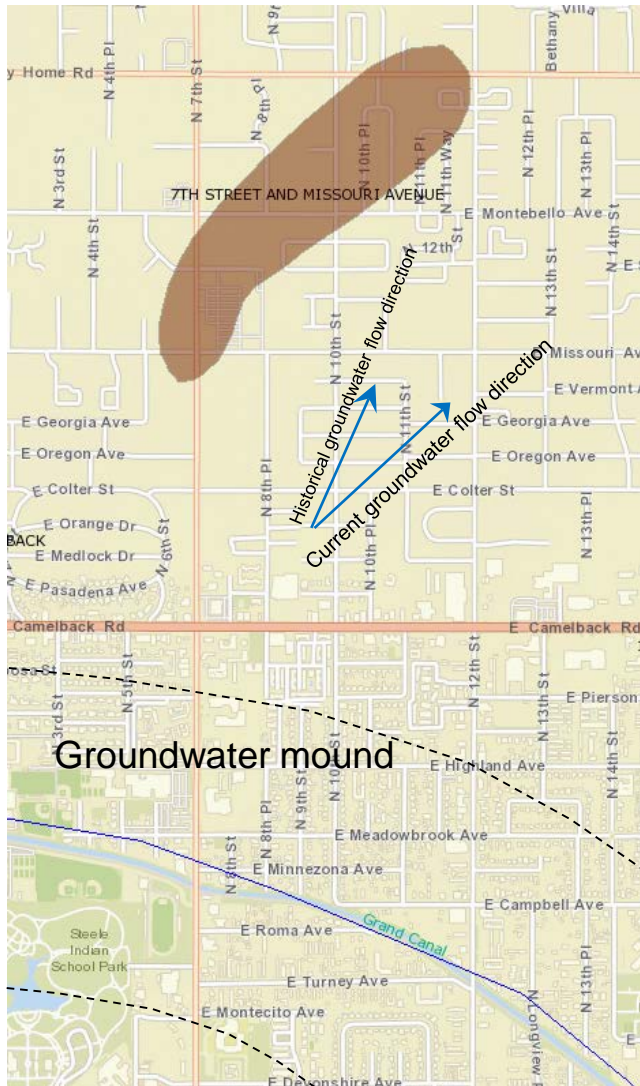
Groundwater  
flow direction  
over time

2017





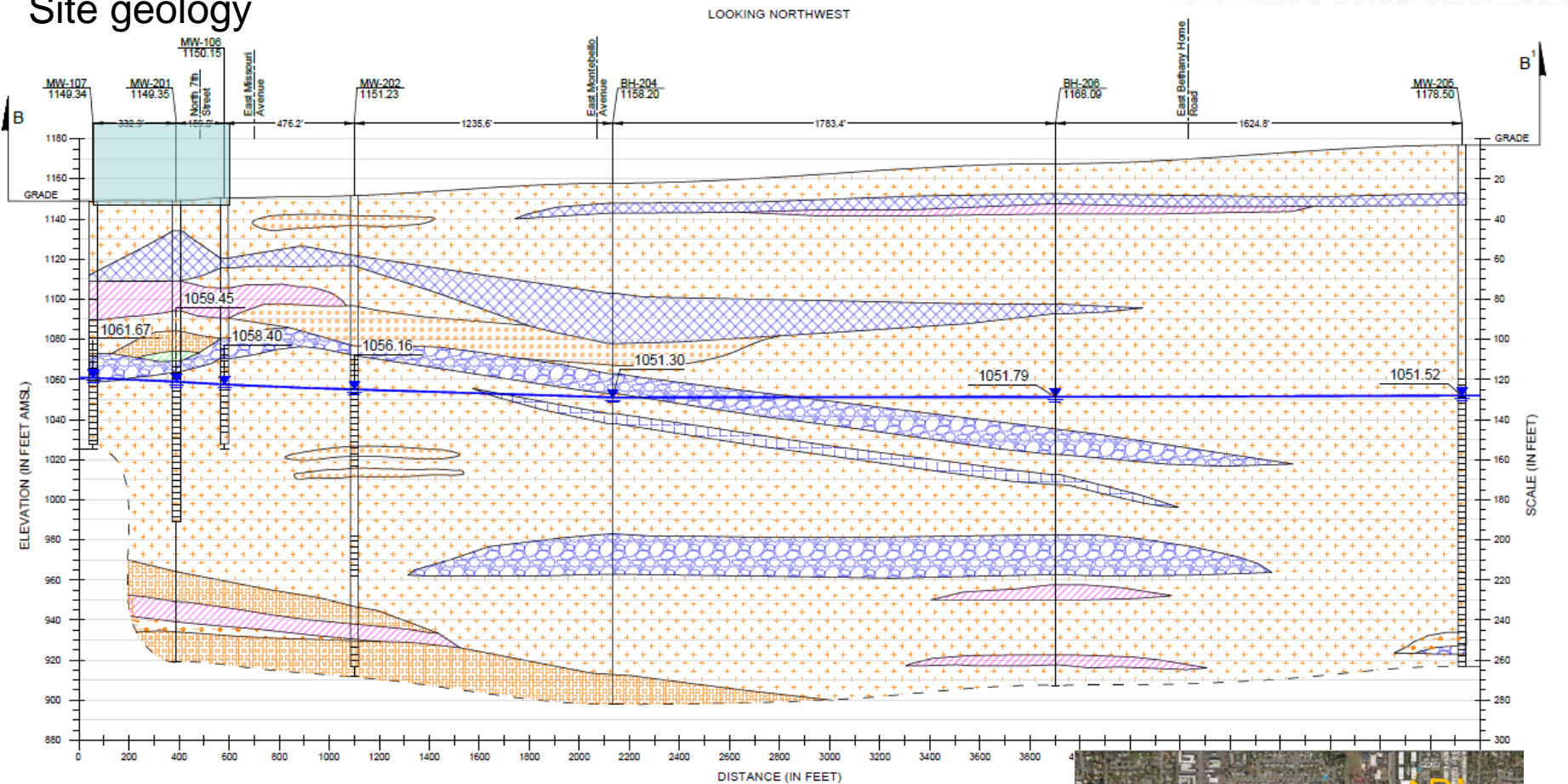
# 7th Street and Missouri Avenue Remedial Investigation Summary – Site Characteristics



- Groundwater flow direction at site likely due to mounded groundwater from previously unlined Grand Canal
  - Unlined in area 1897 - 2007
- Change in groundwater flow direction after lining of canal
  - Post 2007 groundwater levels decreased

# 7th Street and Missouri Avenue Remedial Investigation Summary – Site Characteristics

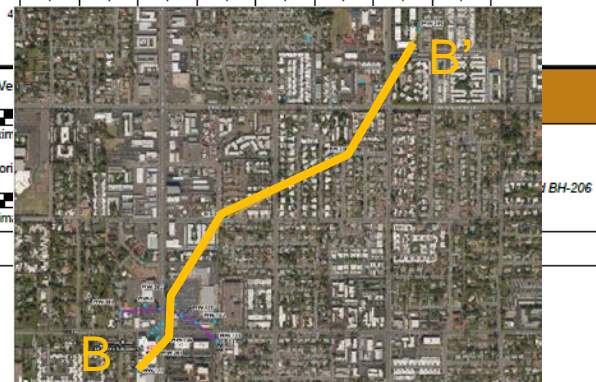
## Site geology



**LEGEND**

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**NOTE:**  
Groundwater elevations collected September 2017  
AMSL = Above Mean Sea Level



Site Location: North 7th Street and East Missouri Avenue, Phoenix, Arizona

Pinyon Project Number: 7/17-1006-03.5206c

# 7th Street and Missouri Avenue Remedial Investigation Summary – Contaminant extent

## Soil gas



- 2013 soil-gas samples collected under underground car park under building
- RI determined concentration at B-5 exceeded residential Soil Remediation Levels and Groundwater Protection Limits

# 7th Street and Missouri Avenue Remedial Investigation Summary - Contaminant extent

## Soil gas



- 2017 soil-gas sampling

All results in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )

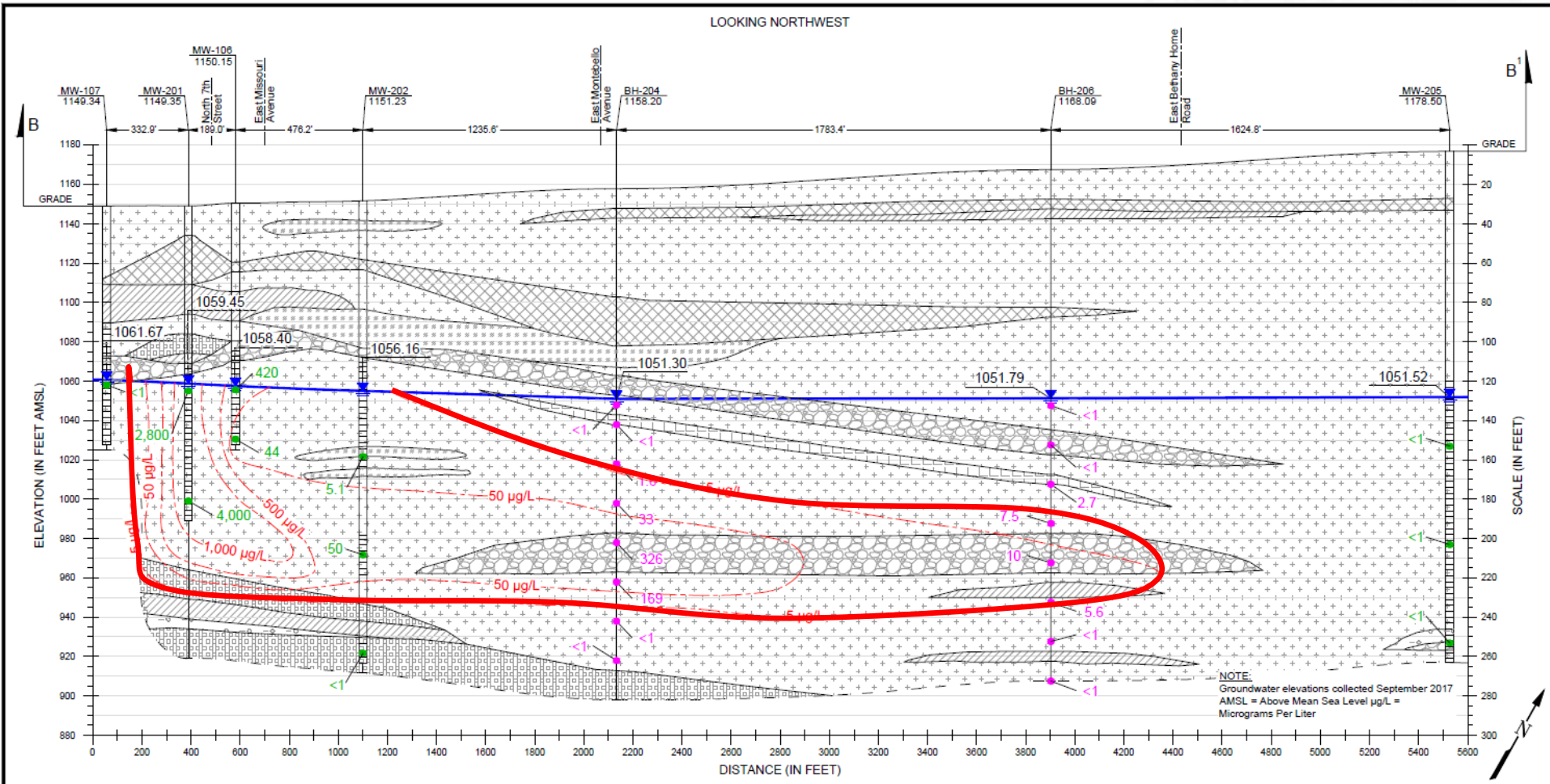
# 7th Street and Missouri Avenue Remedial Investigation Summary - Contaminant extent Groundwater



- Lateral extent of PCE in groundwater

# 7th Street and Missouri Avenue Remedial Investigation Summary Groundwater

- Groundwater PCE vertical extent



## Soil gas



- 2013 indoor air sampling in garage sub-level 3
  - One sample over screening levels
- Indoor air samples collected by building owner in 2013 in first floor suites
  - PCE below screening levels

# 7th Street and Missouri Avenue Remedial Investigation Summary – Exposure routes

## Soil gas

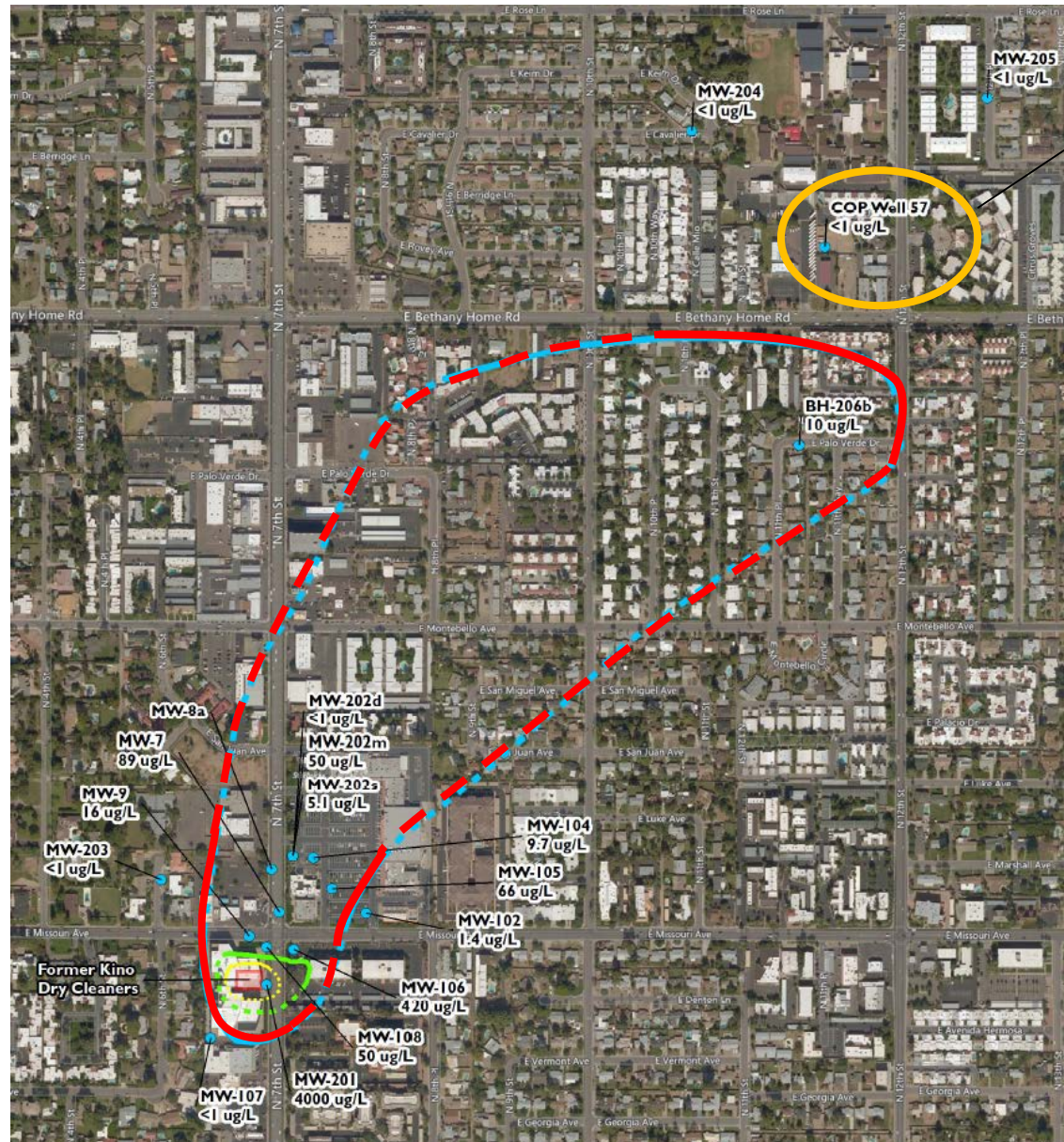


- 2017 soil-gas sampling
- One point right at the screening level – Kinderland Daycare
  - Access for indoor air sampling was granted day of release of Draft RI report
  - No PCE detected indoors

All results in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )



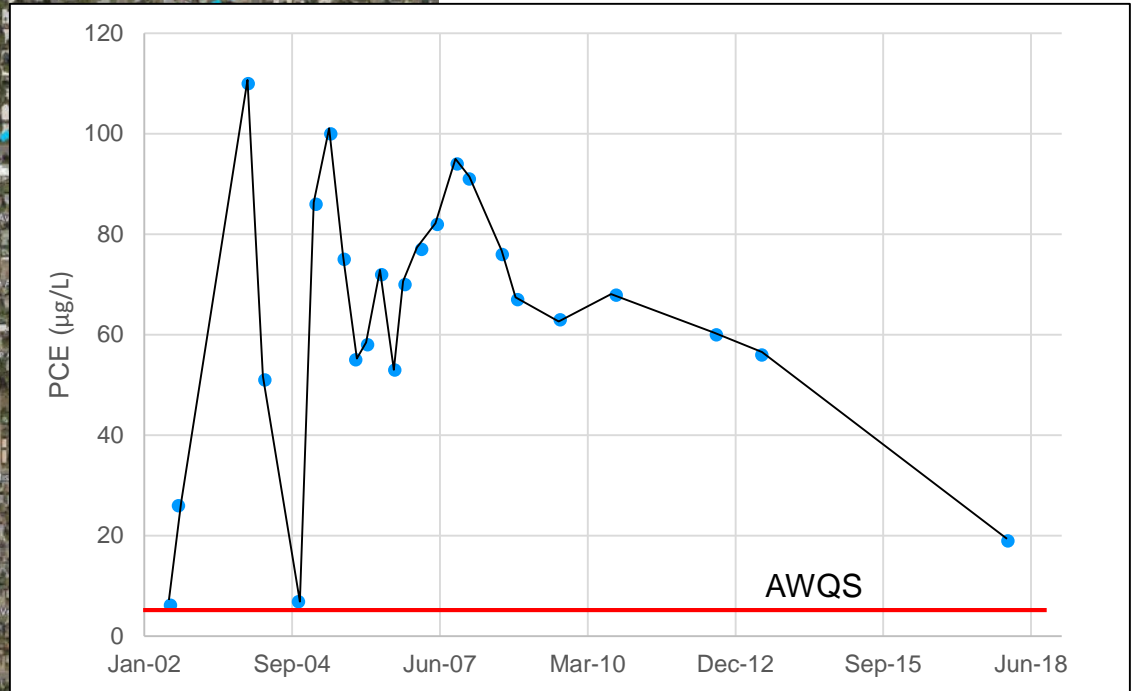
# 7th Street and Missouri Avenue Remedial Investigation Summary – Exposure routes



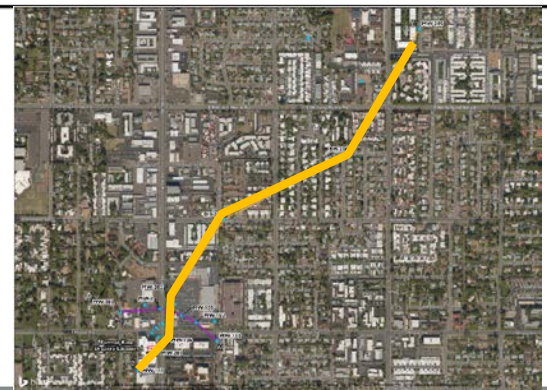
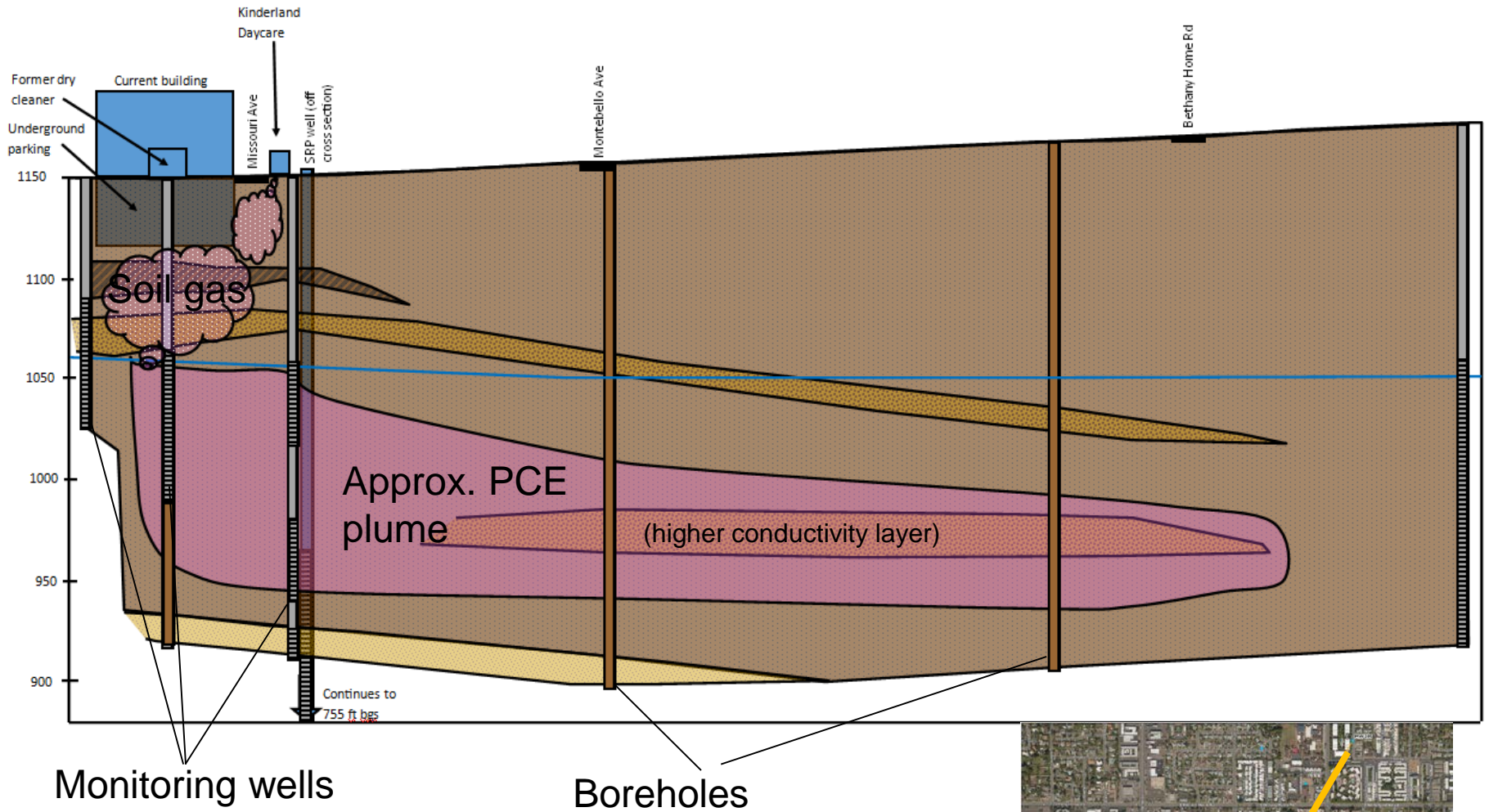
- City of Phoenix well:
  - No site contaminants detected
  - Well not currently in use
  - No immediate plans for use

# 7th Street and Missouri Avenue Remedial Investigation Summary – Exposure routes

- Salt River Project (SRP) well:
  - Impacted by site contamination
  - Current use: Irrigation
  - Future use: SRP supplying drinking water for city of Goodyear



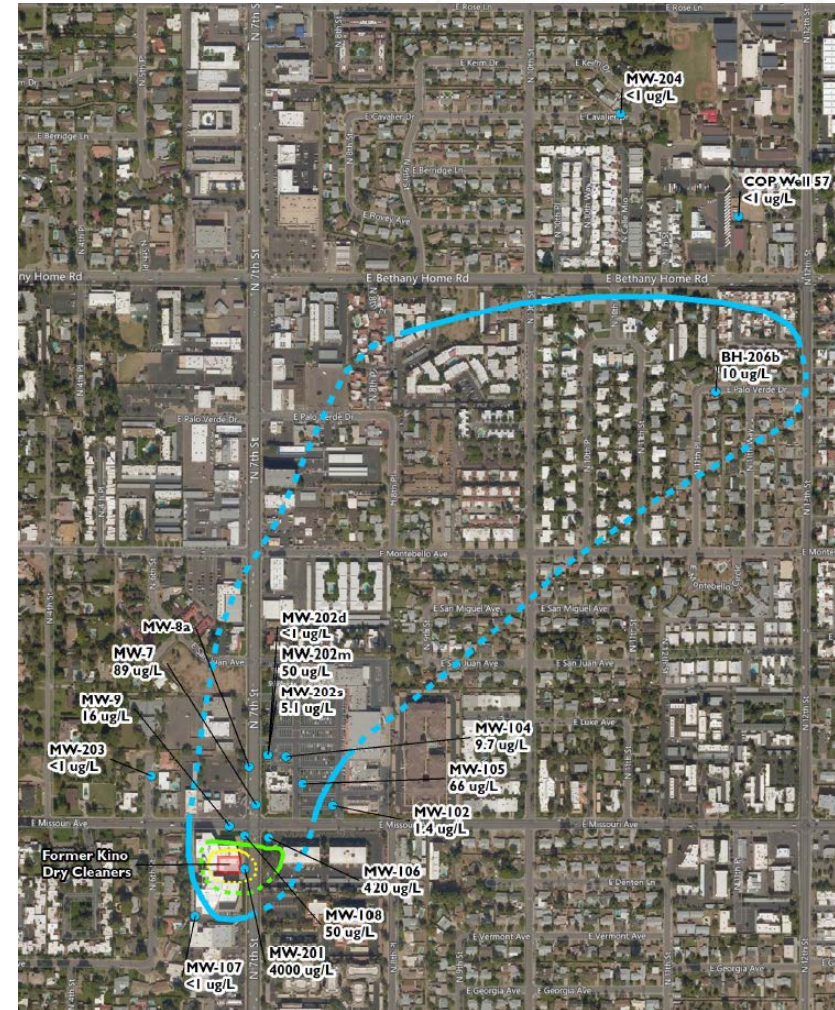
# 7th Street and Missouri Avenue Cartoon Conceptual Site Model



- PCE was most extensive contaminant
- Extent of PCE in soils limited to area under garage
  - Limited exposure to soils due to garage floor acting as barrier
- Extent of PCE in soil gas also mostly limited to area under garage
  - Low risk of exposure due to limited time people spend in garage
- Lateral groundwater PCE extent to the northeast to approx. Bethany Home and 12<sup>th</sup> St.
- Vertical PCE extent in groundwater ~80 feet thick
  - SRP well impacted over drinking water standards, risk for planned future use

## RI data gaps

- Mid-plume monitoring point and side-gradient plume defining wells
- Kinderland Daycare indoor air sampling
  - Complete! Access provided, no PCE detected in indoor air
- The groundwater elevation decreasing – may cause different transport trends in the future



- **Comment period ends Monday, July 30**
- **How to comment:**
  - **Now:** Provide me with comments
    - State your name, affiliation, and verbal comment
    - Hand in written comment on form
  - **By Email:** [hc4@azdeq.gov](mailto:hc4@azdeq.gov) (timestamped July 30, 2018)
  - **By Mail** (*Must be postmarked by July 30, 2018*):

Hazel Cox  
ADEQ  
400 W Congress, Ste 433  
Tucson, AZ 85701



Comments? Questions?

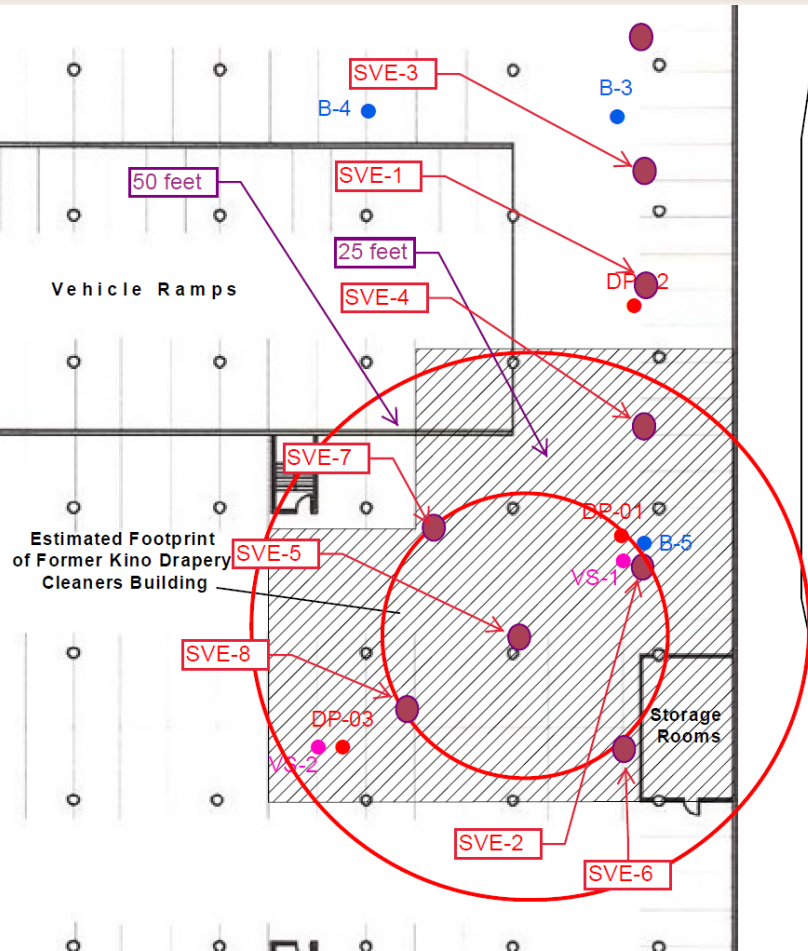


Early Response Action Activities  
7th Street and Missouri Avenue Water  
Quality Assurance Revolving Fund Site

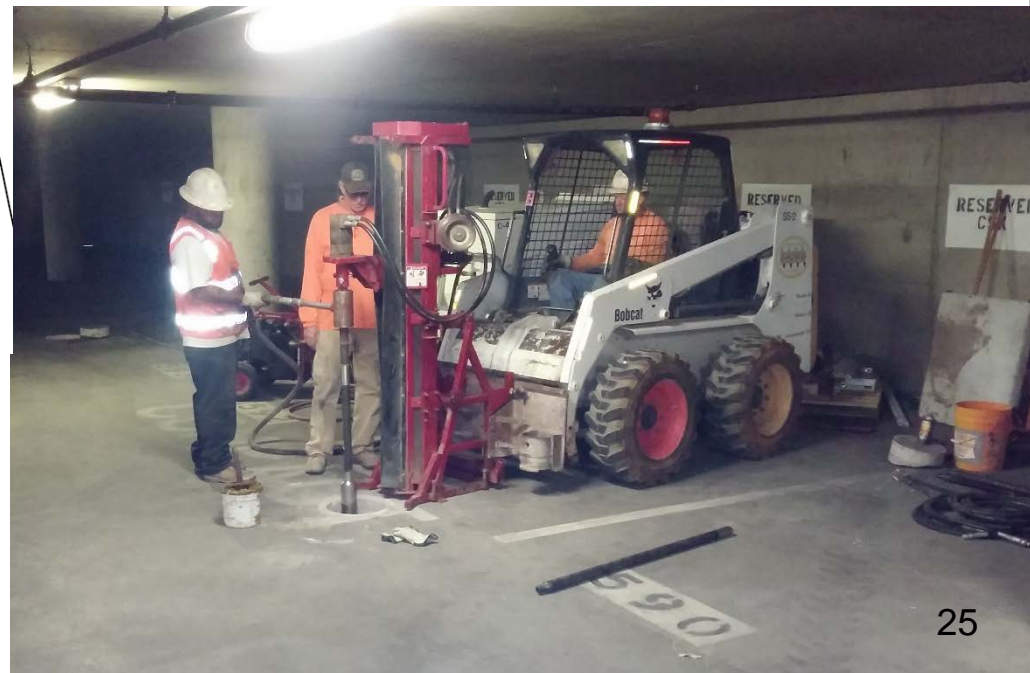
Central Phoenix CAB Meeting  
23 July 2018

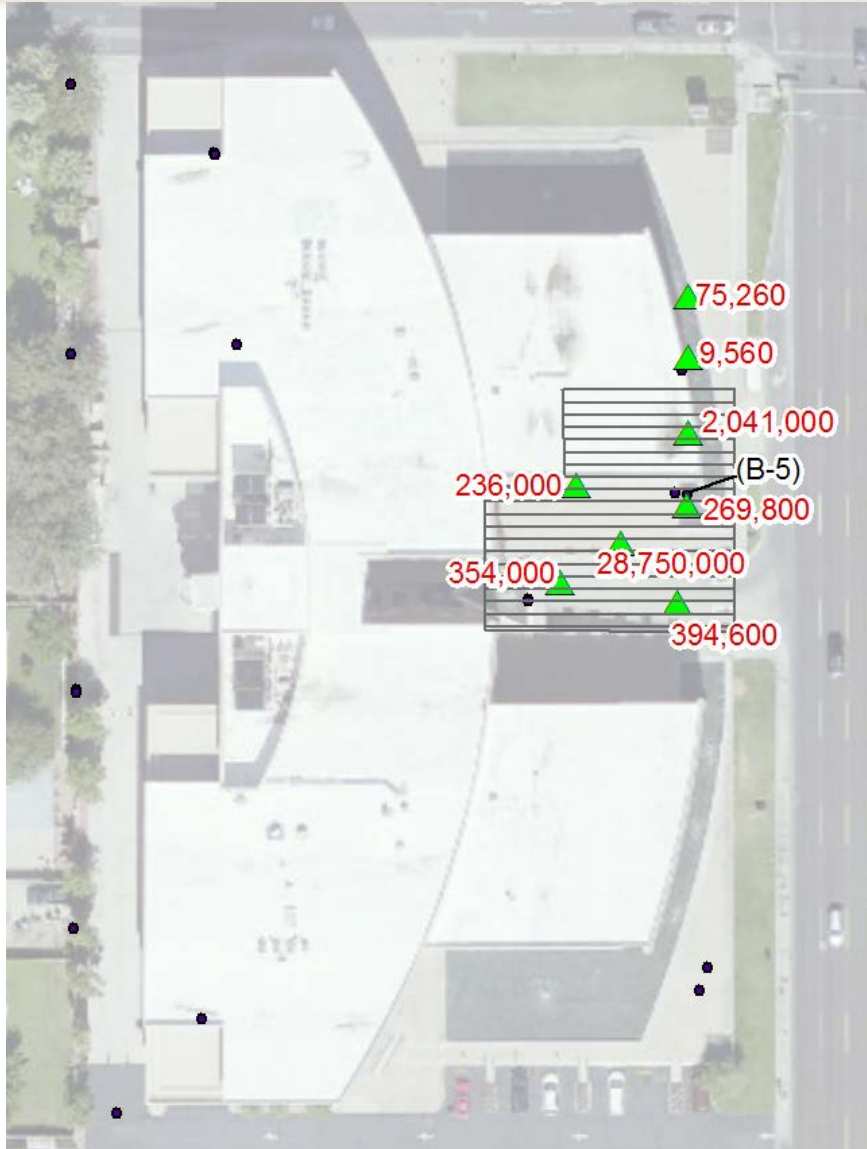


# 7th Street and Missouri Avenue Early Response Action



- Early Response Action (ERA) Soil Vapor Extraction system (SVE)
- So far installed wells in underground garage, run pilot test





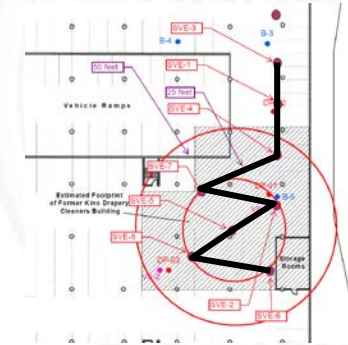
## Sampling during well install

- Max soil gas concentration  $28,750,000 \mu\text{g}/\text{m}^3$ 
  - Screening level  $1,500 \mu\text{g}/\text{m}^3$
- Max soil concentration  $10,400 \text{ mg}/\text{kg}$ 
  - Non-residential SRL  $13 \text{ mg}/\text{kg}$

All results in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )

# 7th Street and Missouri Avenue Early Response Action

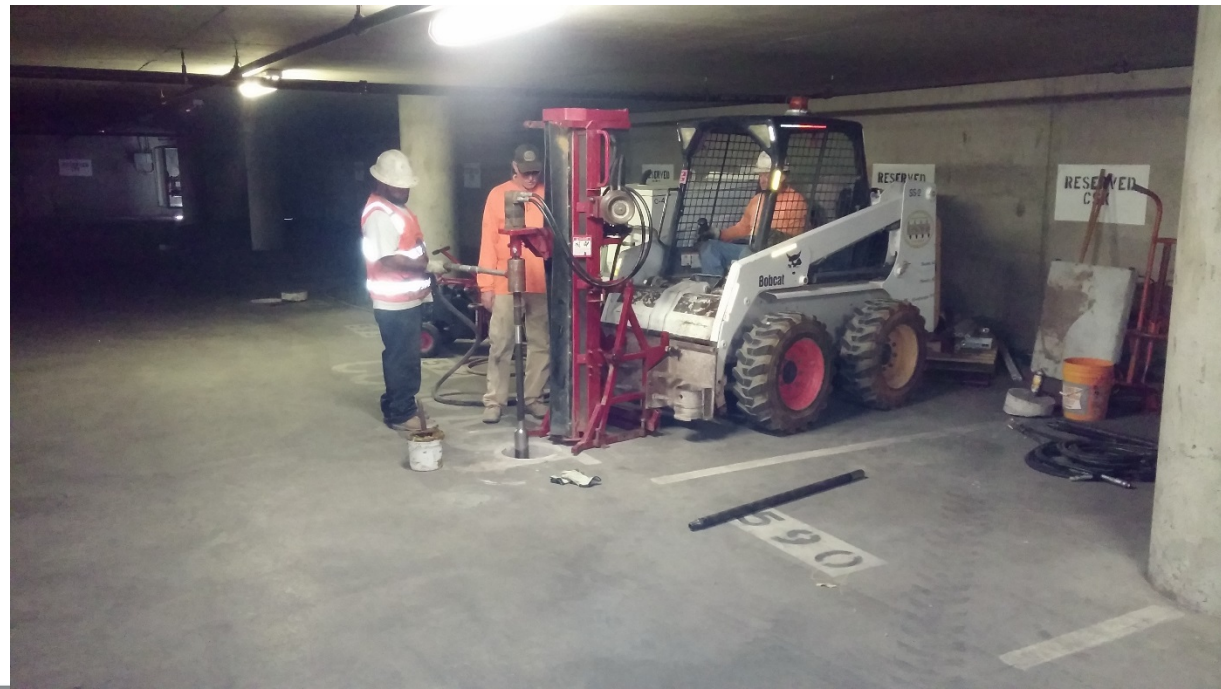
- Highest soil gas concentrations generally associated with silty – clayey layer



| Soil Layer       | Depth (ft) | SVE-6   | SVE-8   | SVE-5      | SVE-2   | SVE-7   | SVE-4     | SVE-1 | SVE-3  |
|------------------|------------|---------|---------|------------|---------|---------|-----------|-------|--------|
| Ground surface   | 0          |         |         |            |         |         |           |       |        |
|                  | 5          |         |         |            |         |         |           |       |        |
|                  | 10         |         |         |            |         |         |           |       |        |
|                  | 15         |         |         |            |         |         |           |       |        |
|                  | 20         |         |         |            |         |         |           |       |        |
| Garage           | 25         |         |         |            |         |         |           |       |        |
| Sandy            | 30         |         |         |            |         |         |           |       |        |
| Silty - clayey   | 35         | 394,600 | 354,000 | 28,750,000 | 95,600  | 230,000 | 75,940    | 3,062 | 4,785  |
|                  | 40         |         |         |            |         |         |           |       |        |
|                  | 45         | 131,000 | 205,000 | 13,490,000 | 269,800 | 631     | 343,100   | 9,560 | 75,260 |
|                  | 50         |         |         |            |         |         |           |       |        |
| Sandy            | 55         | 71.2    | 1,130   | 1,173,000  | 15,120  | 236,000 | 318,000   | 18    | 8,814  |
| Sandy - Gravelly | 60         |         |         |            |         |         |           |       |        |
|                  | 65         | 23,100  | 4,140   | 1,078,000  | 52,140  | 4,640   | 2,041,000 | 52    | 1,383  |
|                  | 70         |         |         |            |         |         |           |       |        |
|                  | 75         |         |         | 354,000    |         |         |           |       |        |
|                  | 80         |         |         |            |         |         |           |       |        |
|                  | 85         |         |         |            |         |         |           |       |        |
| GW               | 90         |         |         |            |         |         |           |       |        |

All results in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )

- Draft results from pilot test
  - SVE a viable option for remediating the soil
- Next steps
  - Design more permanent system
  - Install – with minimal interruptions of use of the parking lot
  - Run system
  - Rebound testing





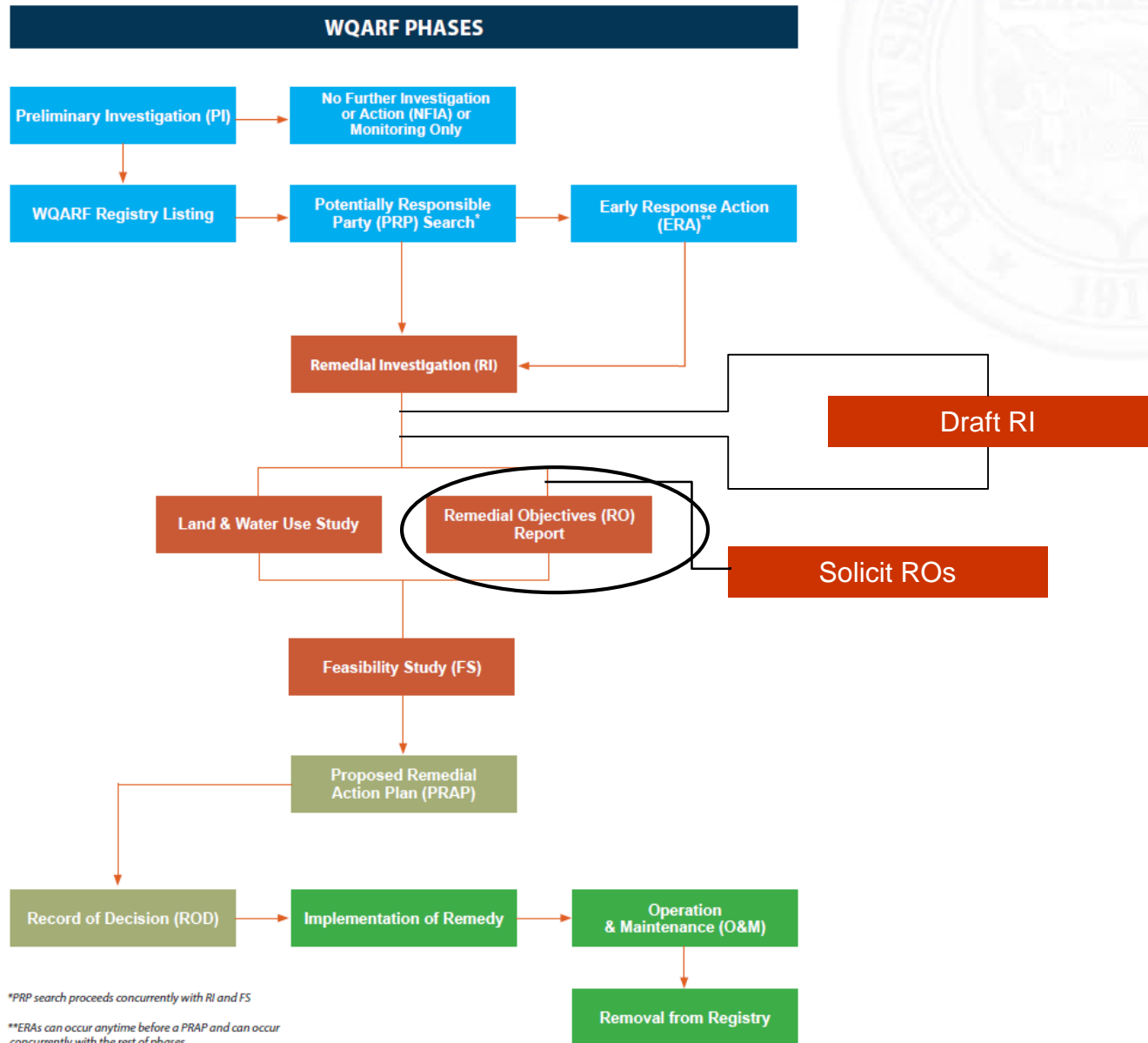
# Remedial Objectives

7th Street and Missouri Avenue Water  
Quality Assurance Revolving Fund Site

Central Phoenix CAB Meeting  
23 July 2018



# 7th Street and Missouri Avenue Remedial Objectives



\*PRP search proceeds concurrently with RI and FS

\*\*ERAs can occur anytime before a PRAP and can occur concurrently with the rest of phases

## RO solicitation and consideration

- State regulations say ROs shall be written in the form of:
  1. Protecting against the loss or impairment of each listed use that is threatened by the release
  2. Restoring, replacing, or otherwise providing for each listed use
  3. Time frames when the action is needed
  4. The projected duration of the action needed

e.g. Central and Camelback RO for Groundwater:

1 The remedial objective for regional groundwater at the Site is to protect for the use as a  
2 groundwater supply by the City of Phoenix, and SRP. This action is currently needed and will  
3 be needed if/when groundwater use changes to municipal/drinking water. This action will be  
4 needed for as long as the level of contamination in the groundwater threatens the use of the  
regional groundwater for municipal/drinking water uses

## Soil

### Draft RI proposed version:

To ensure soil conditions at the site do not cause or threaten to cause a violation of groundwater remediation standards specified in A.A.C. R18-7-203 that are applicable to the hazardous substances identified. This action is needed for the present time and for as long as the level of contamination in the soil at the site threatens groundwater.

### Amended proposed version:

To ensure soil conditions at the site do not **exceed applicable SRLs or** cause or threaten to cause a violation of groundwater remediation standards specified in A.A.C. R18-7-203 that are applicable to the hazardous substances identified. This action is needed for the present time and for as long as the level of contamination exceeds in the soil at the site **exceeds applicable SRLs** and threatens groundwater.



# 7th Street and Missouri Avenue Proposed Remedial Objectives - solicitation

## Groundwater

### Draft RI proposed version:

To restore, replace or otherwise provide for water for the designated use, ~~at the point of compliance,~~ from contamination associated with the 7th Street and Missouri Avenue WQARF site. This action will be needed for as long as the need for the water exists, the resource remains available and the contamination associated with the 7th Street and Missouri Avenue WQARF site prohibits or limits the designated groundwater ~~use at the point of compliance. The point of compliance may be at the wellhead, or in the case of SRP wells that pump into the Grand Canal, at the discharge point into the canal.~~

### Amended proposed version:

To restore, replace or otherwise provide for water for the designated use, **lost or impaired by** contamination associated with the 7th Street and Missouri Avenue WQARF site. This action will be needed for as long as the need for the water exists, the resource remains available and the contamination associated with the 7th Street and Missouri Avenue WQARF site prohibits or limits the **designated** uses of groundwater.

- **Comment period ends Monday, July 30**
- **How to comment:**
  - **Now:** Provide me with comments
    - State your name, affiliation, and verbal comment
    - Hand in written comment on form
  - **By Email:** [hc4@azdeq.gov](mailto:hc4@azdeq.gov) (timestamped July 30, 2018)
  - **By Mail** (*Must be postmarked by July 30, 2018*):

Hazel Cox  
ADEQ  
400 W Congress, Ste 433  
Tucson, AZ 85701