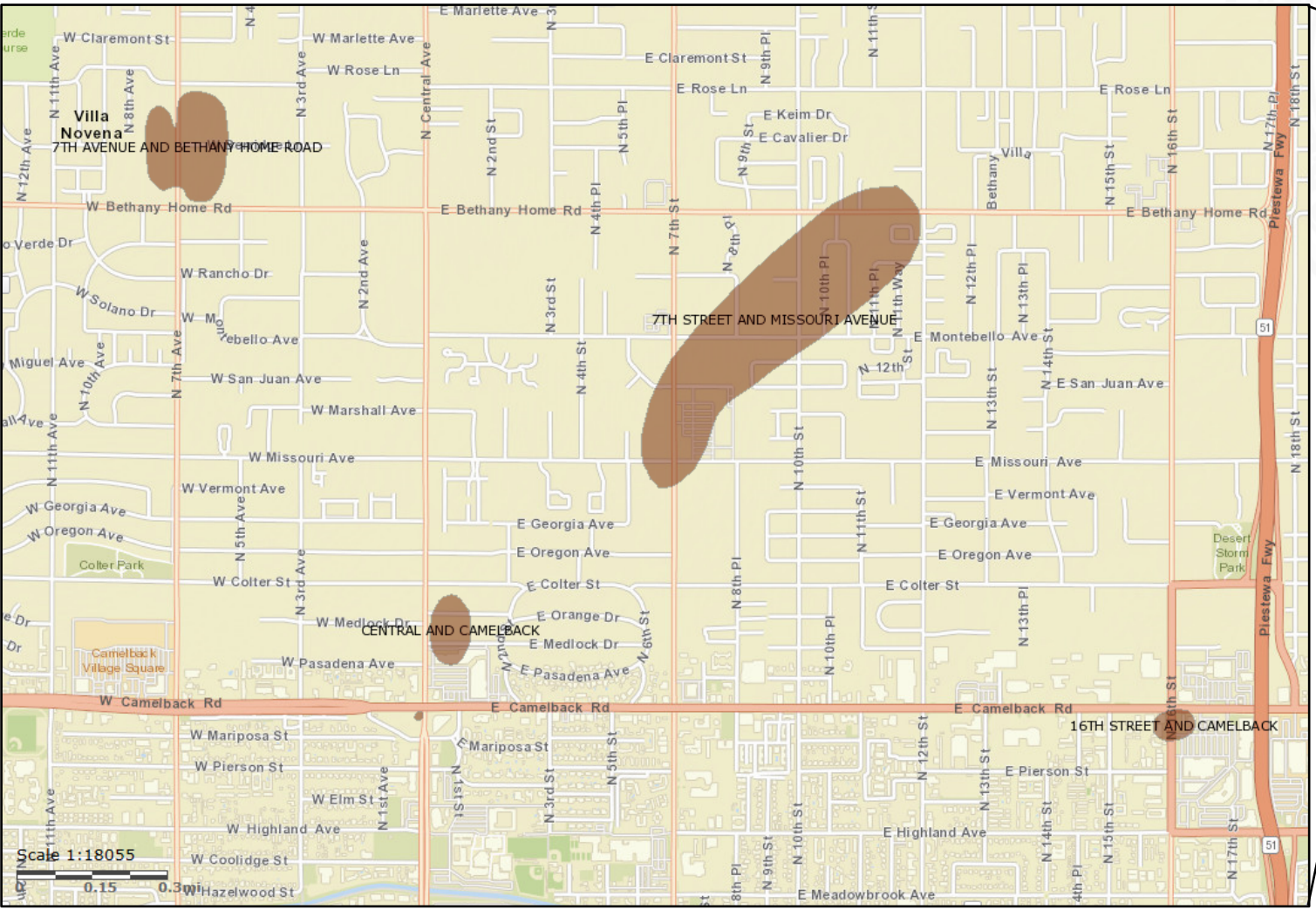
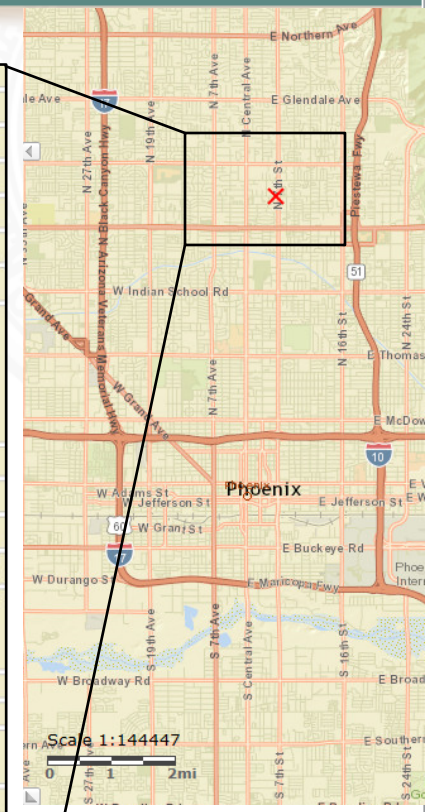
7th Street and Missouri Avenue Water Quality Assurance Revolving Fund Site

Central Phoenix CAB Meeting
2 August 2017

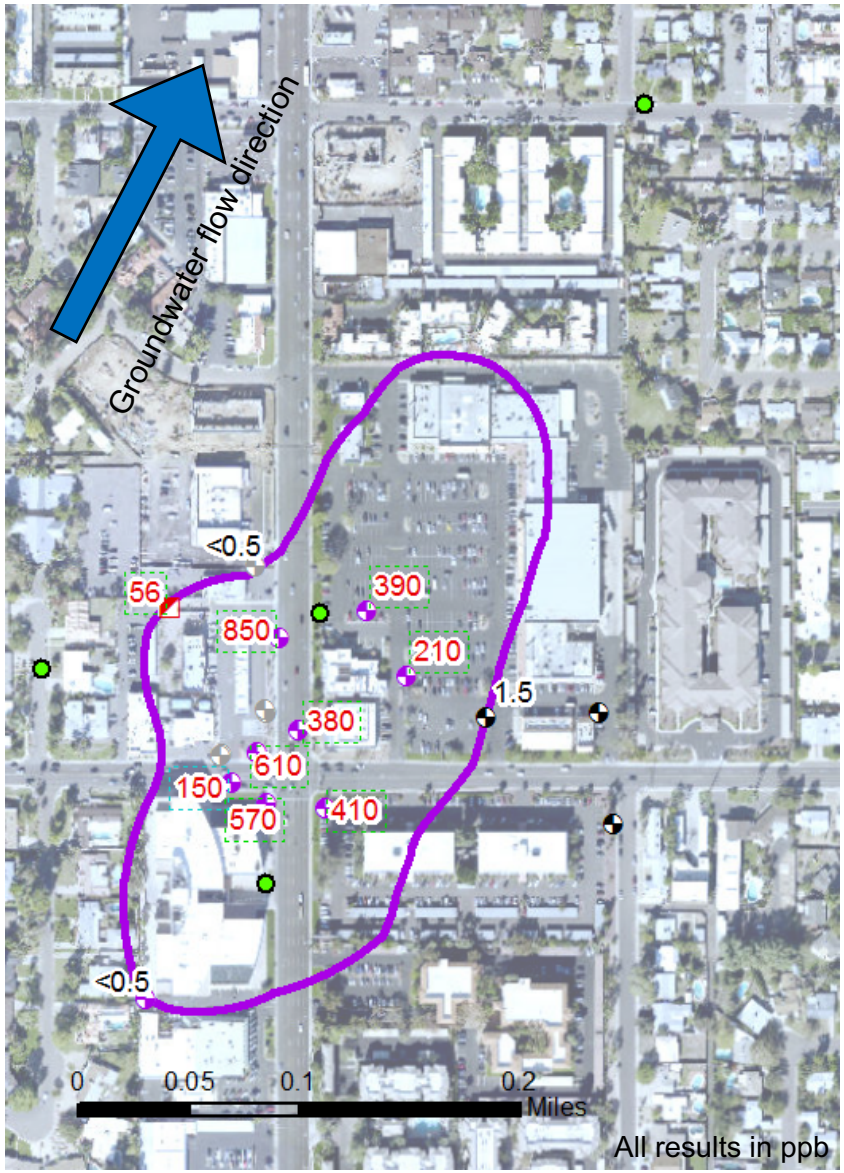
ADEQ
Arizona Department of Environmental Quality

7th Street and Missouri Avenue
Site location





7th Street and Missouri Avenue
Review: Groundwater contamination, August 2016

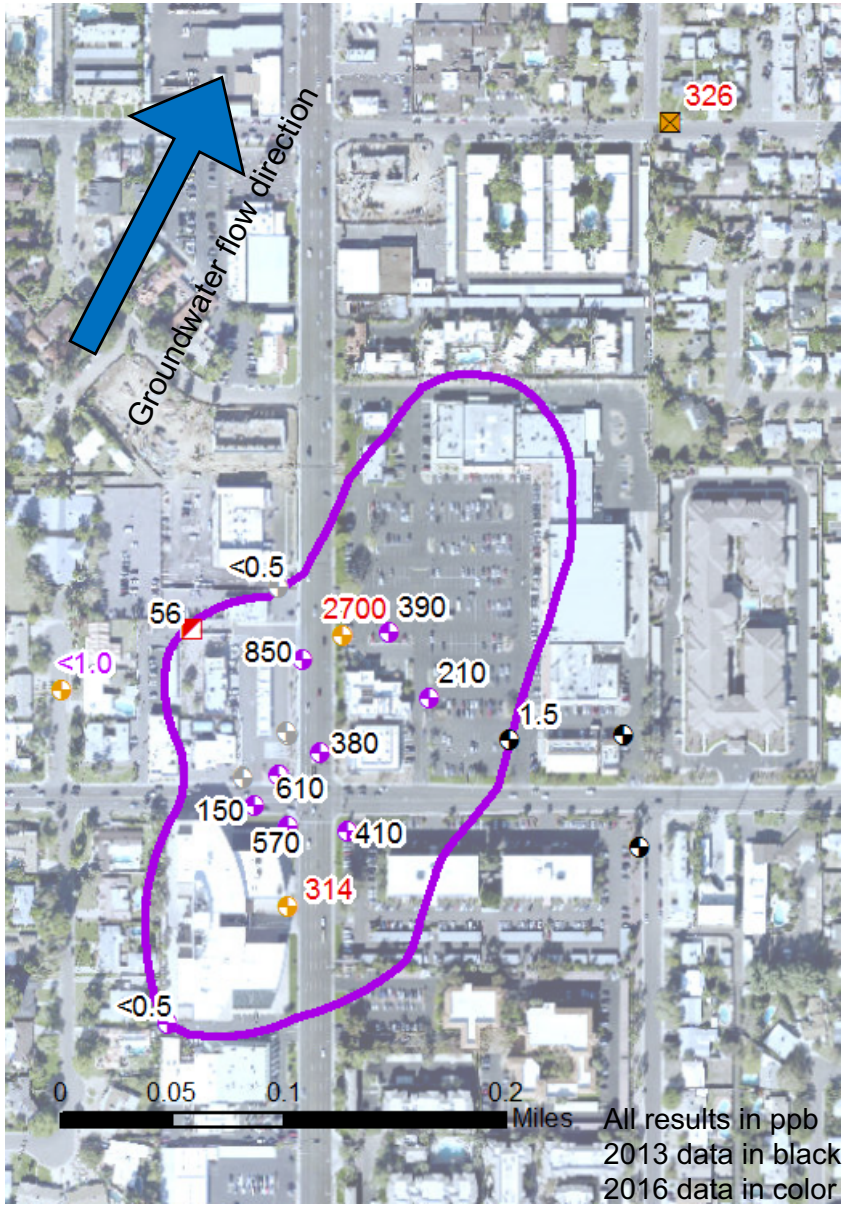


- Lots of information gathered in Preliminary Investigation (before site was listed WQARF site)
- Proposed four new wells
  1. Former suspected source
  2. West side of plume
  3. Middle of plume for understanding of depth of contamination
  4. Far edge of plume

Legend

- Abandoned/destroyed wells
- LUST/PI phase wells
- VRP Site wells
- SRP well
- Proposed wells

7th Street and Missouri Avenue Groundwater contamination, December 2016

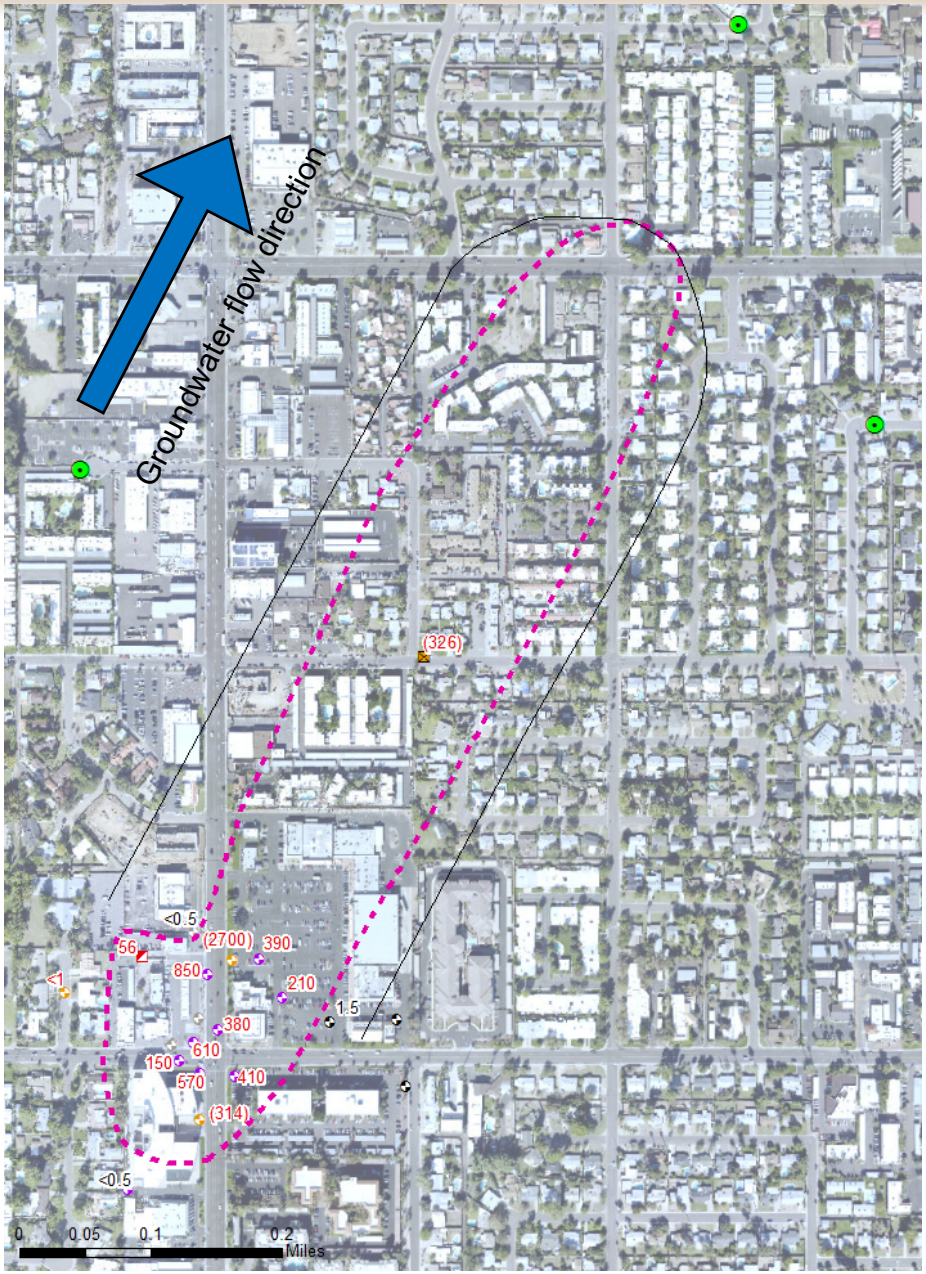


- Well near to former suspected source had PCE over Aquifer Water Quality Standard of 5 ppb
- West well was non-detect for PCE
- Well mid-plume showed higher concentrations at depth
- While drilling for well on far edge, also found PCE above 5 ppb
  - No well installed here

Legend

- Abandoned/destroyed wells
- LUST/PI phase wells
- VRP Site wells
- RI phase wells
- Boreholes
- SRP well

7th Street and Missouri Avenue Groundwater contamination, December 2016

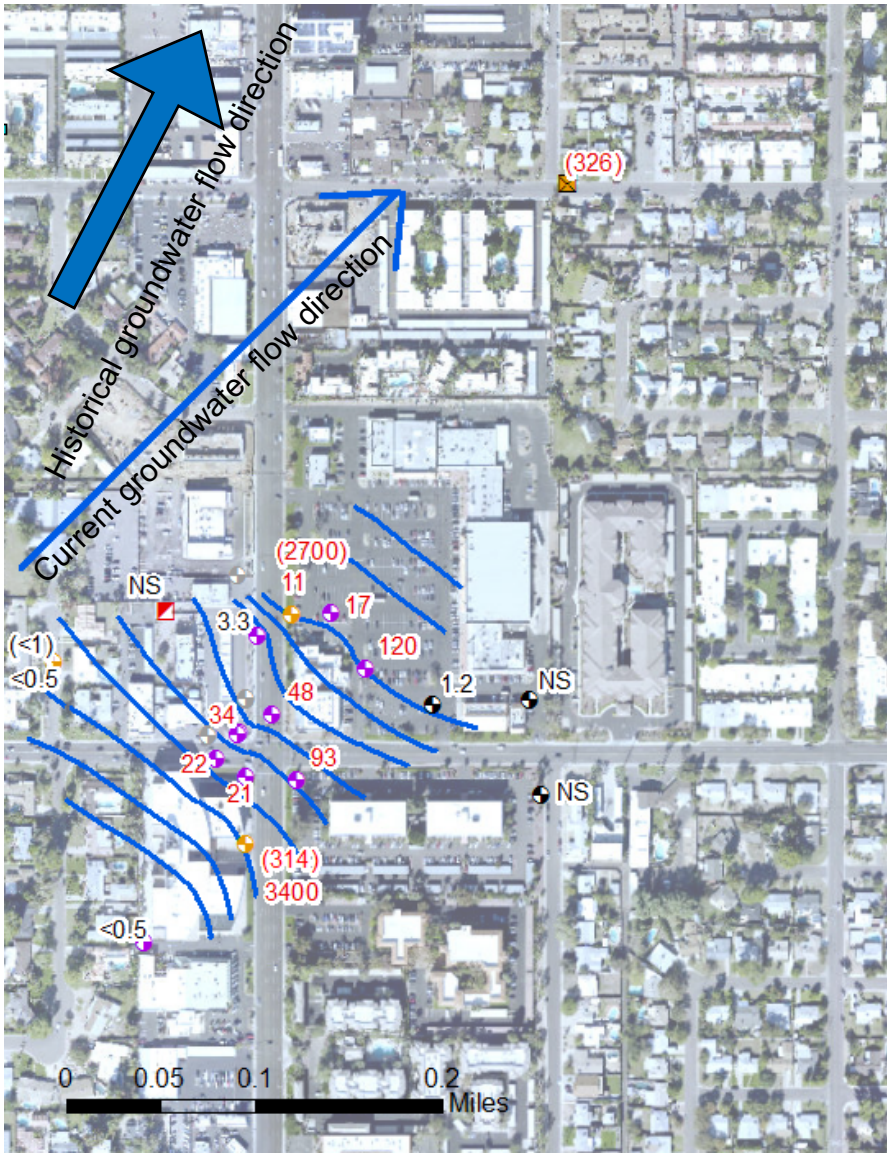


- Re-evaluated, selected new well locations using the new data
- New far edge well, and two side (west and east) wells

Legend

- Abandoned/destroyed wells
- LUST/PI phase wells
- VRP Site wells
- RI phase wells
- Boreholes
- SRP well
- Proposed wells
- 1D model estimation of plume
- Assumed Dec 2016 PCE plume extent
- 850 2013 PCE
- (2700) 2016 borehole PCE

7th Street and Missouri Avenue Groundwater contamination, January 2017



- Sampled existing wells January
  - Some wells increased, some decreased in concentrations
- Groundwater flow direction had shifted

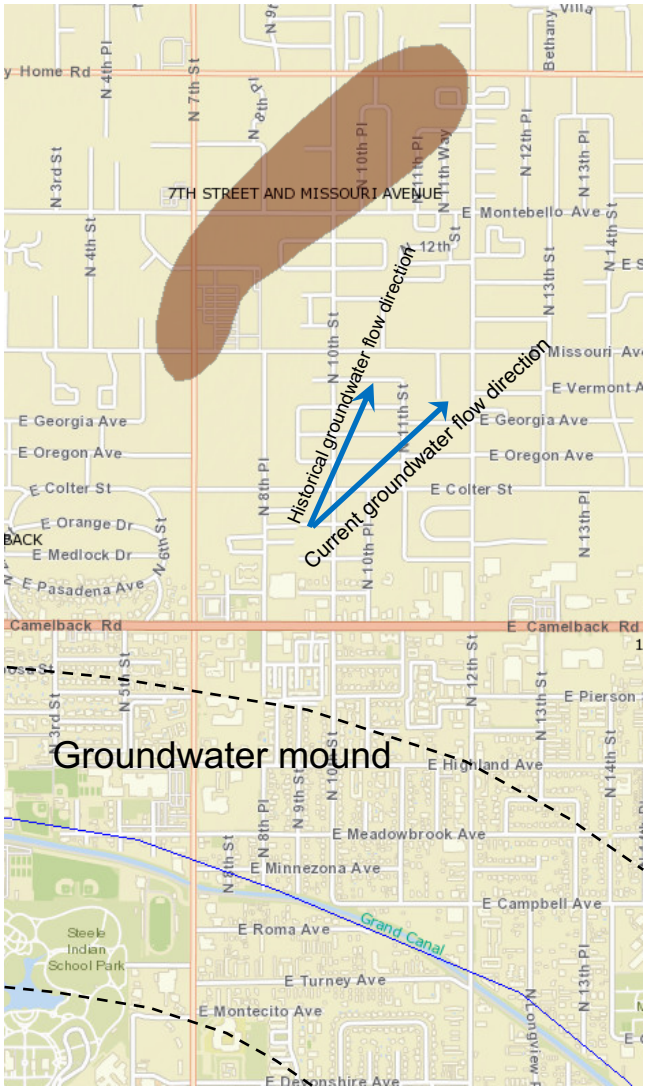
Legend

- Abandoned/destroyed wells
- LUST/PI phase wells
- VRP Site wells
- RI phase wells
- Boreholes
- SRP well
- Proposed wells

48 Jan 2017 PCE

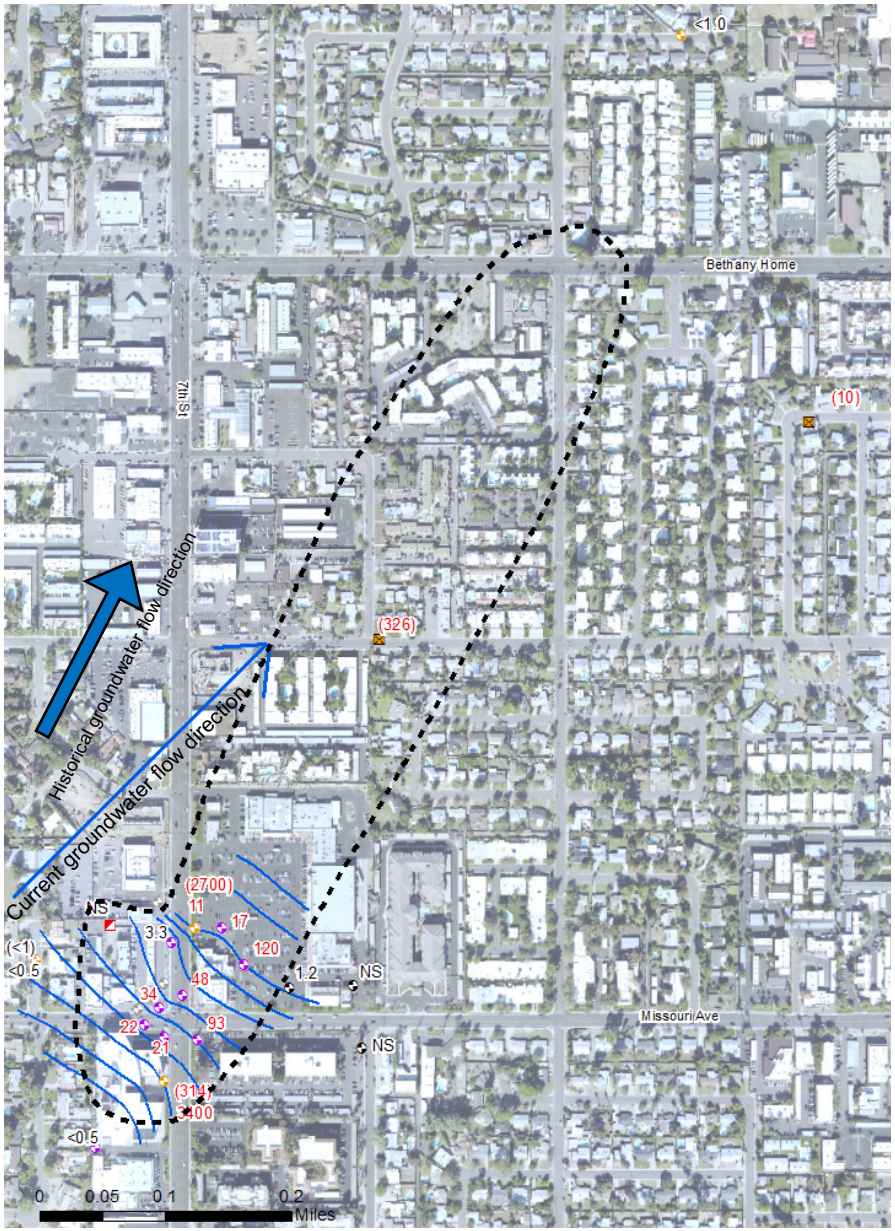
(2700) 2016 borehole PCE

7th Street and Missouri Avenue Groundwater flow direction change



- 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 Groundwater contamination



- Drilled east well first, found PCE over 5 ppb
  - Shift in flow direction moved plume further east that anticipated
  - No well installed

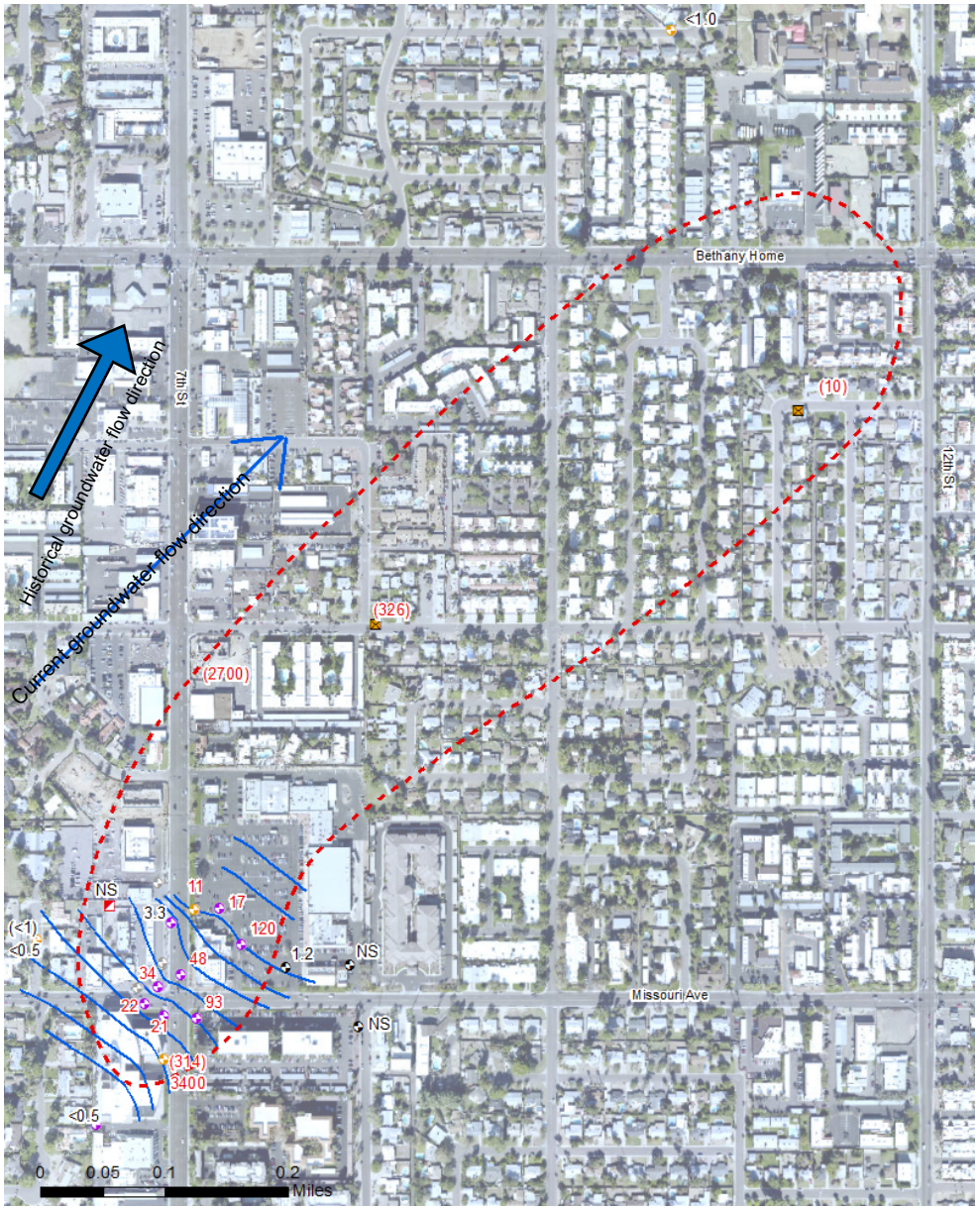
Legend

- Abandoned/destroyed wells
- LUST/PI phase wells
- VRP Site wells
- RI phase wells
- Boreholes
- SRP well
- Proposed wells

48 April 2017 PCE

(2700) 2016 borehole PCE

7th Street and Missouri Avenue Groundwater contamination



- Drilled east well first, found PCE over 5 ppb
  - Shift in flow direction moved plume further east that anticipated
  - No well installed
- Well installed for "downgradient" edge now likely defining side of plume

Legend

- Abandoned/destroyed wells
- LUST/PI phase wells
- VRP Site wells
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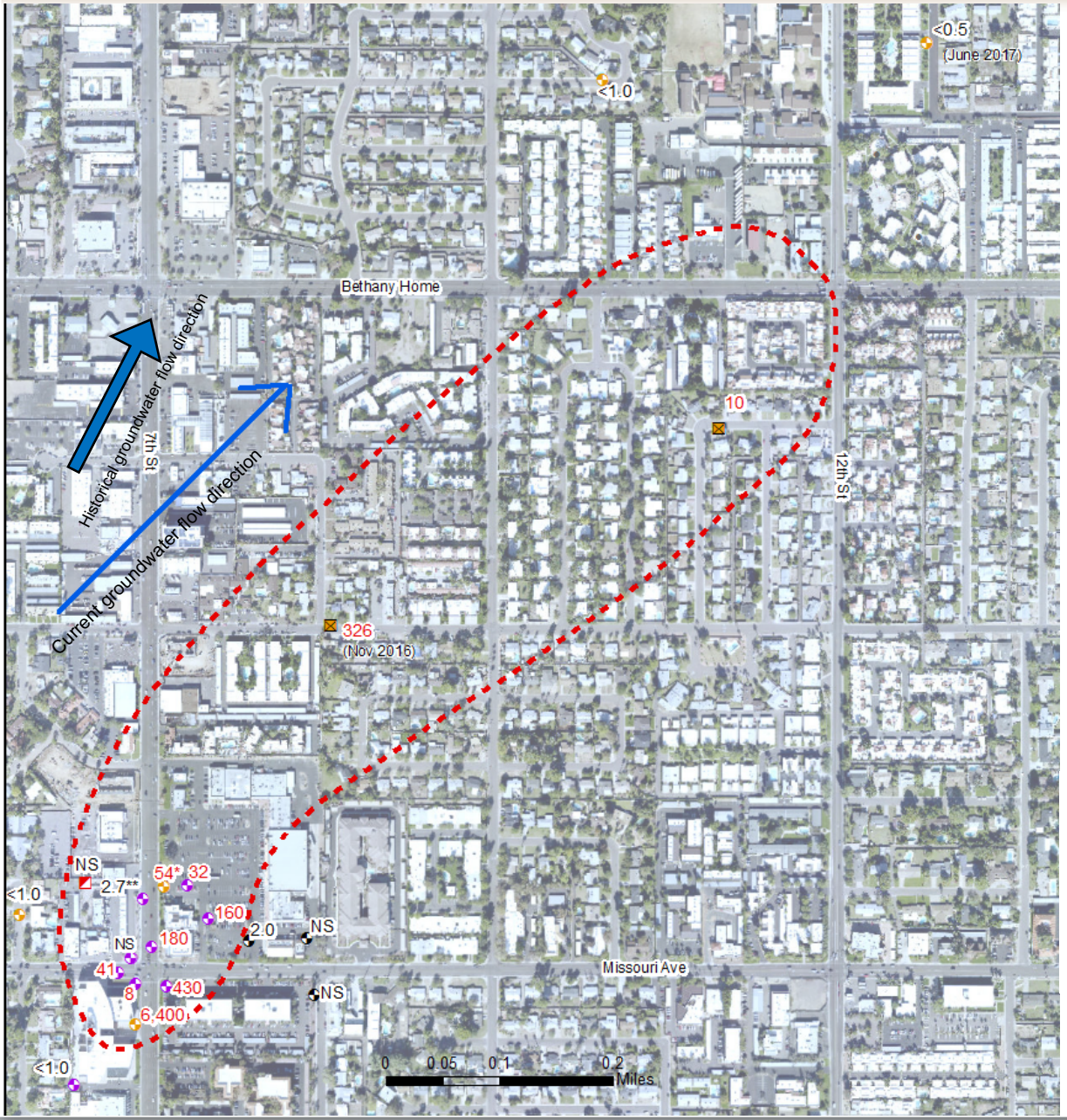
- Boreholes
- SRP well
- Proposed wells

48 April 2017 PCE

(2700) 2016 borehole PCE

7th Street and Missouri Avenue Groundwater contamination, April 2017



- Sampled all wells again in April
  - Higher concentrations detected than January
- Installed far edge well in June
  - Non-detect for PCE

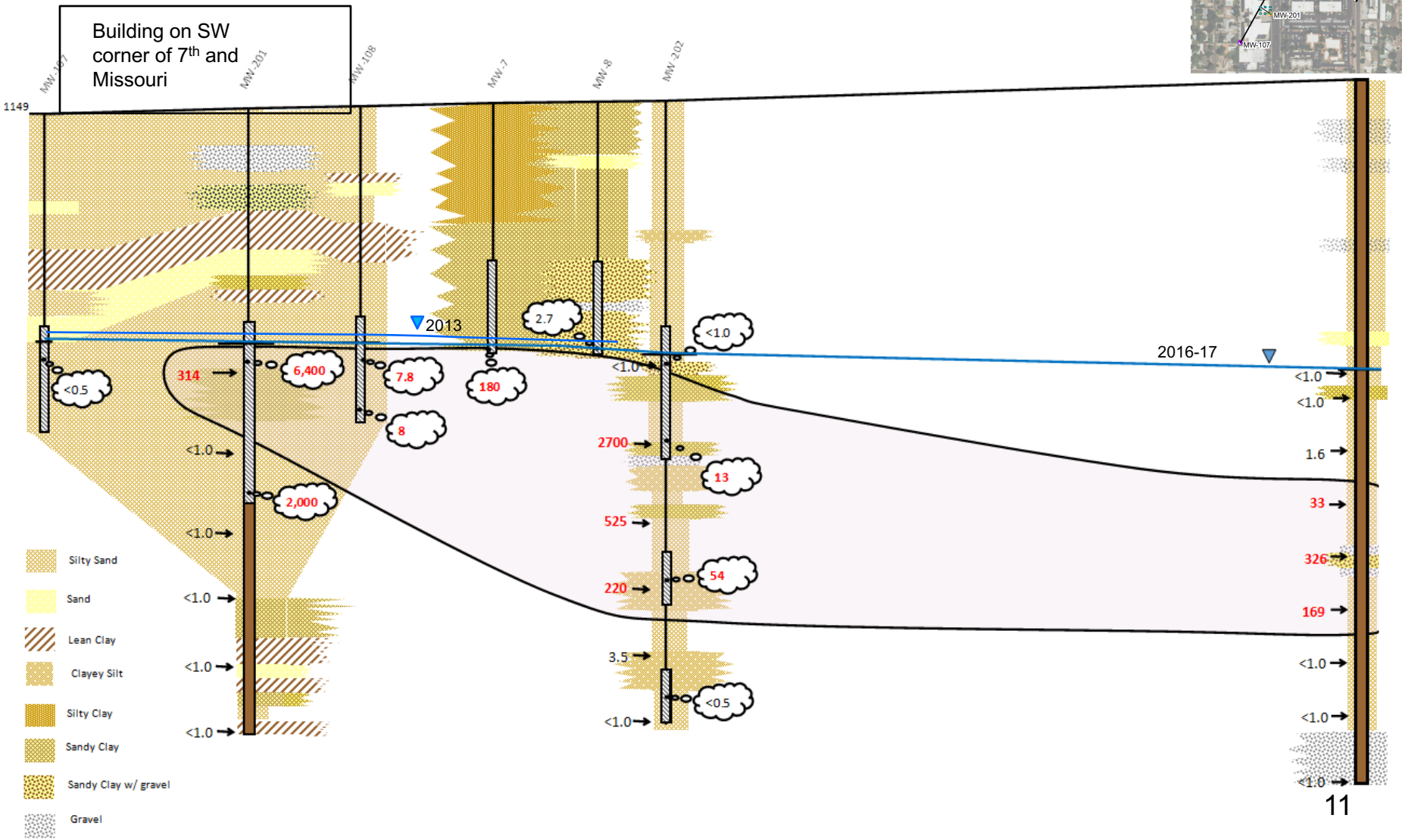
Legend

- LUST/PI phase wells
- VRP Site wells
- RI phase wells
- Boreholes
- SRP well
- Approx Apr 2017 PCE extent
- 430 April 2017 PCE

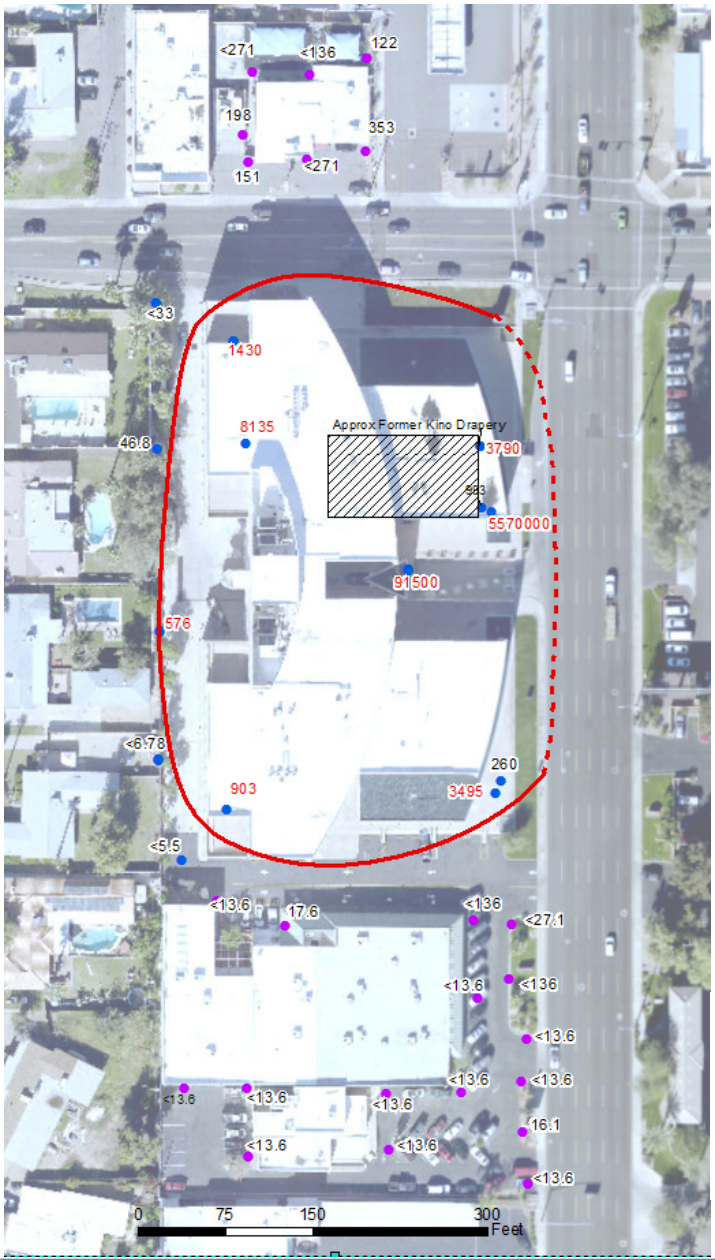
* Well redeveloped three days prior to sample
** Well too shallow - not used for plume boundary

7th Street and Missouri Avenue
Vertical groundwater concentrations

April 2017 results (+ December 2016 borehole concentrations)



7th Street and Missouri Avenue
Soil-gas results



- 2013 soil-gas samples collected at depth due to underground car park under building
- 2017 soil-gas samples were shallower to evaluate risk to buildings
- Used EPA Regional Screening Levels (RSL) for indoor air to develop soil-gas screening level

- Contaminated soil gas confined to deep soils under building
  - Still question of extent on east side

Legend

- 2017 soil gas measurement (5 feet deep)
- 2013 soil gas measurement (over 20 feet deep)

All results in micrograms per cubmic meter (µg/m³)

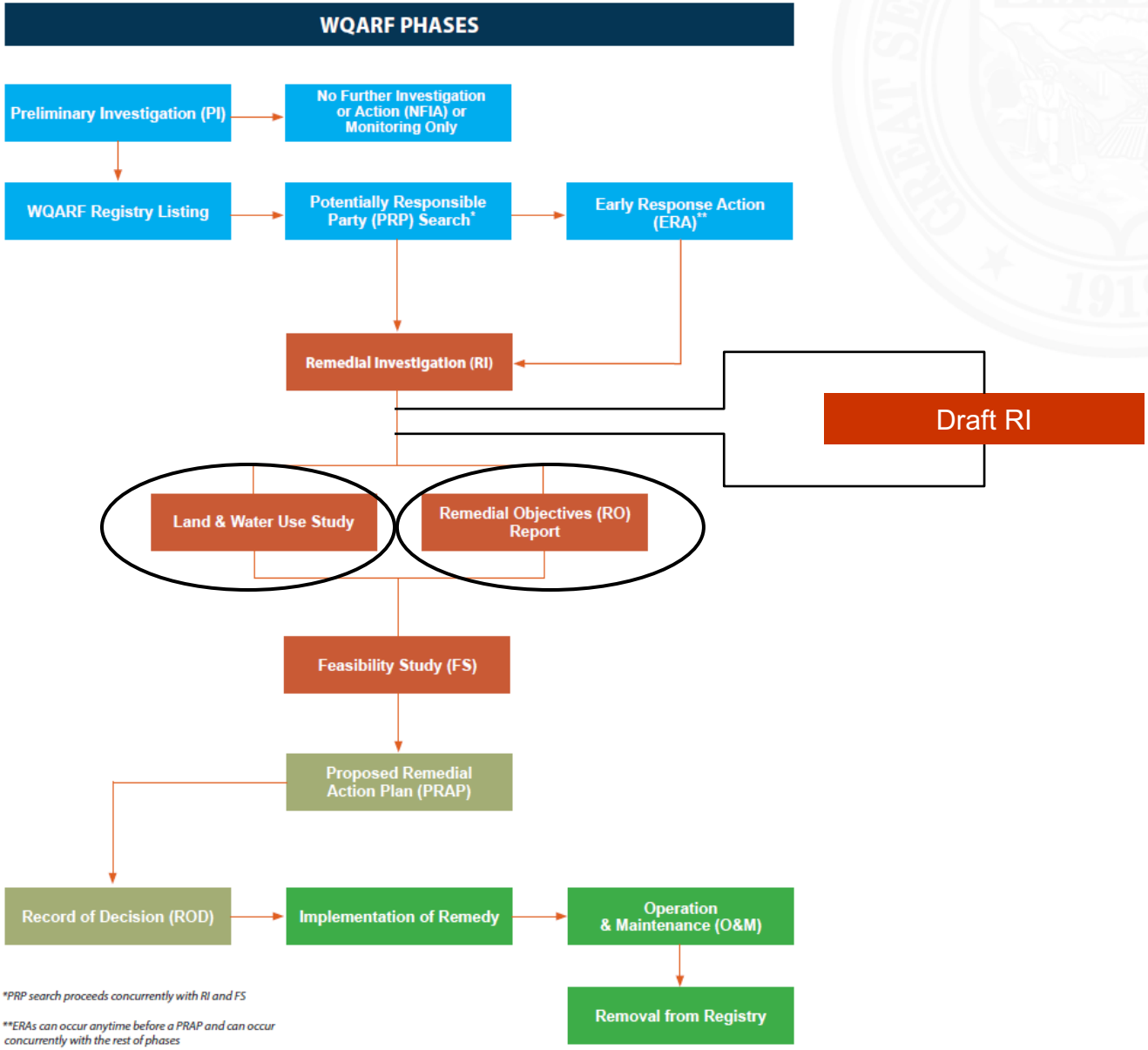
RI work complete

- Drilled seven boreholes, installed five wells
- Two rounds of groundwater monitoring and sampling
- Soil gas near buildings north and south of potential source area evaluated

RI work projected this fiscal year

- Clean up data gaps
  - Sampling inactive City of Phoenix Well
  - Final round of groundwater sampling
  - Soil gas on east side 7th St
- Final RI by June 2018

7th Street and Missouri Avenue
Upcoming community involvement



Questions?