



GRIGGS AND WALNUT GROUND WATER PLUME SUPERFUND SITE STATUS UPDATE

Community Meeting
Branigan Library, 200 East Picacho
September 25, 2019

ROLES AND RESPONSIBILITIES



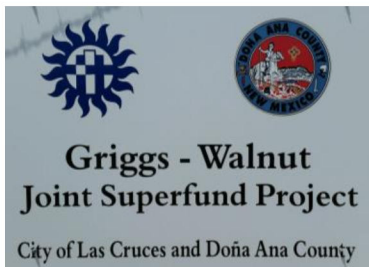
EPA – REGULATES CLEANUPS UNDER 1980 SUPERFUND LAW

- Selects Site-Specific Remedies based on Evaluation of Contamination, Risk, and Cleanup Options



NEW MEXICO ENVIRONMENT DEPARTMENT (NMED)

- Regulates Protection of Ground Water under NM Water Quality Act

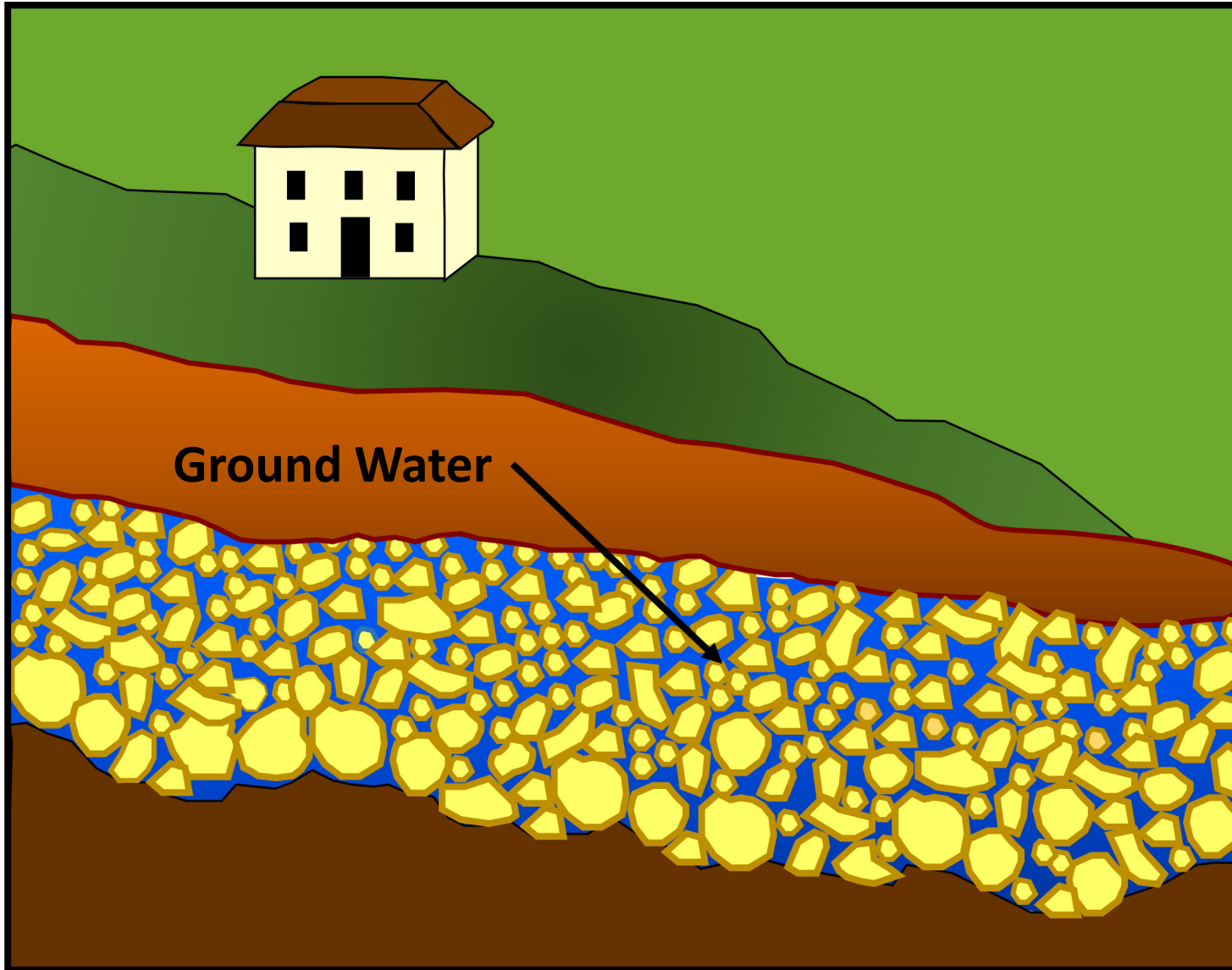


CITY OF LAS CRUCES AND DOÑA ANA COUNTY

- Identified as “Potentially Responsible Parties”
- Formed the “Joint Superfund Project” (JSP) to Implement Remedy Selected by EPA
- Currently Performing Work under EPA Administrative Order

SITE BACKGROUND CHRONOLOGY

- GROUND WATER CONTAMINATION DISCOVERED – 1993
 - Tetrachloroethylene (PCE)
- PLACED ON EPA NATIONAL PRIORITIES LIST (NPL) – 2001
- EPA COMPLETES INVESTIGATION OF PCE PLUME - 2005
- EPA SELECTS REMEDY – 2007
- REMEDY DESIGN AND CONSTRUCTION COMPLETED BY JSP – 2012
- OPERATIONAL STARTUP – 2012
- FIRST FIVE-YEAR REVIEW ON REMEDY PROTECTIVENESS – 2016



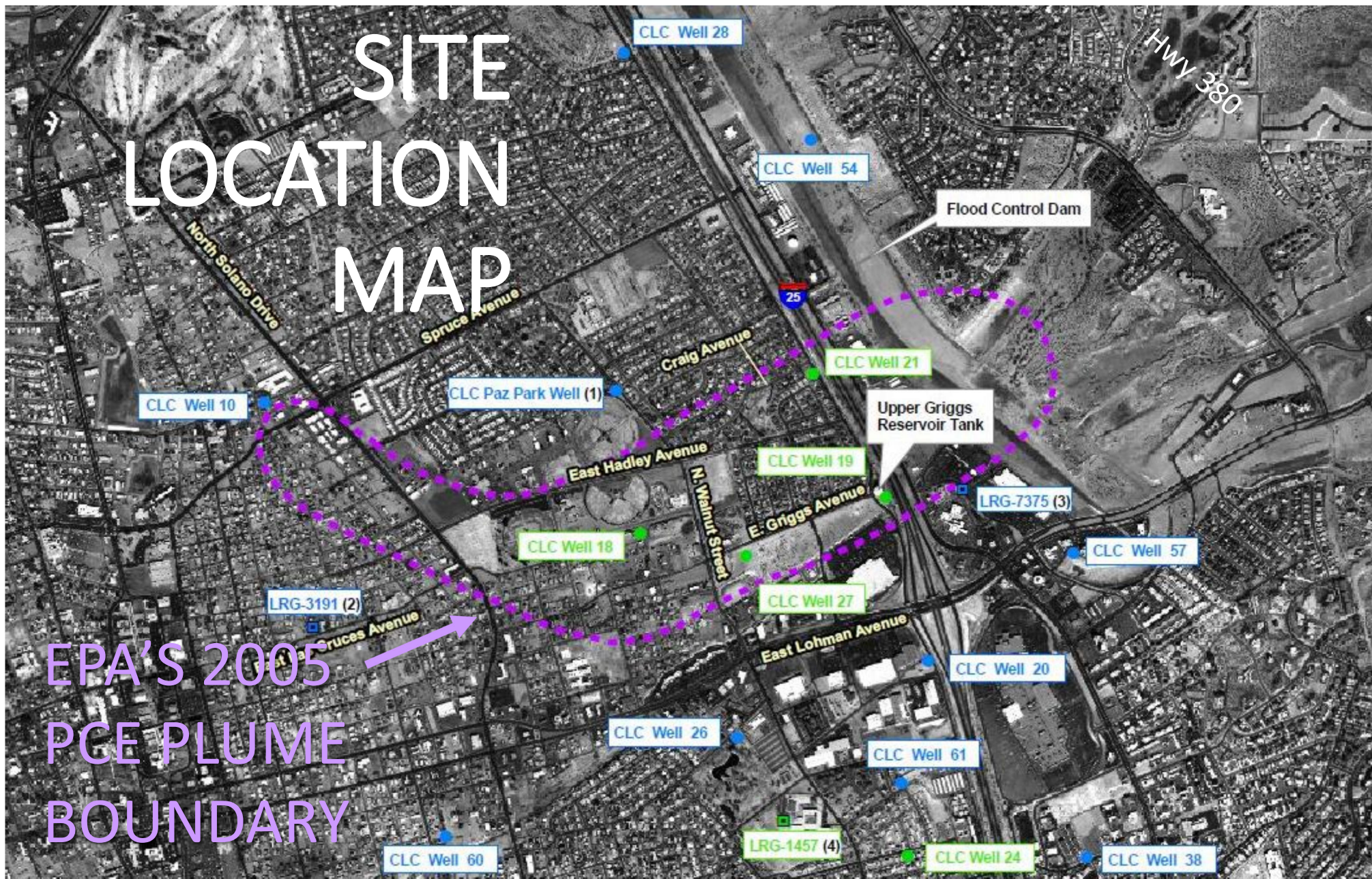
GROUND WATER

ILLUSTRATION

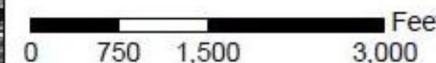
Modified from City of Las Cruces
Poster Display

SITE LOCATION MAP

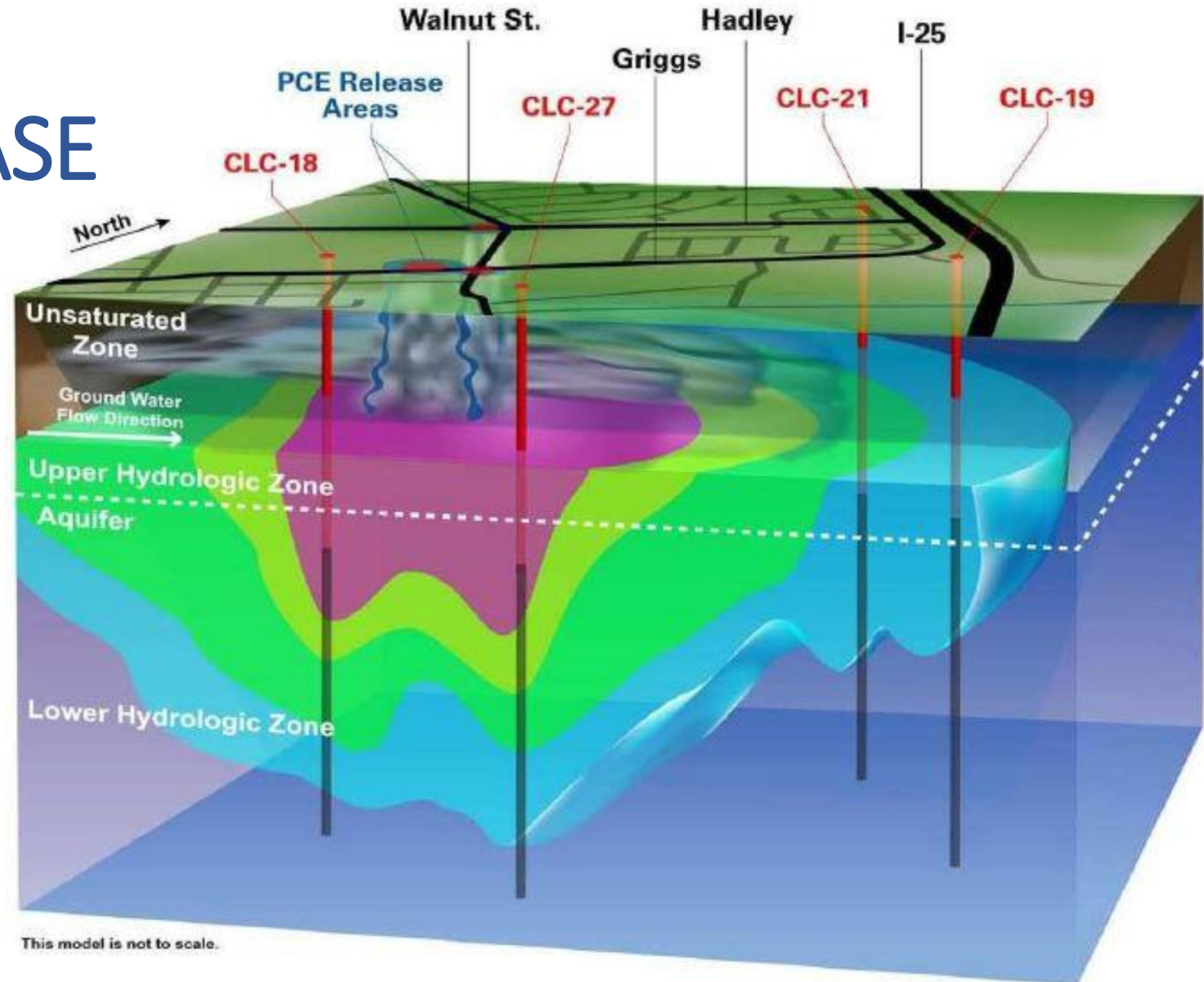
EPA'S 2005
PCE PLUME
BOUNDARY



Las Cruces



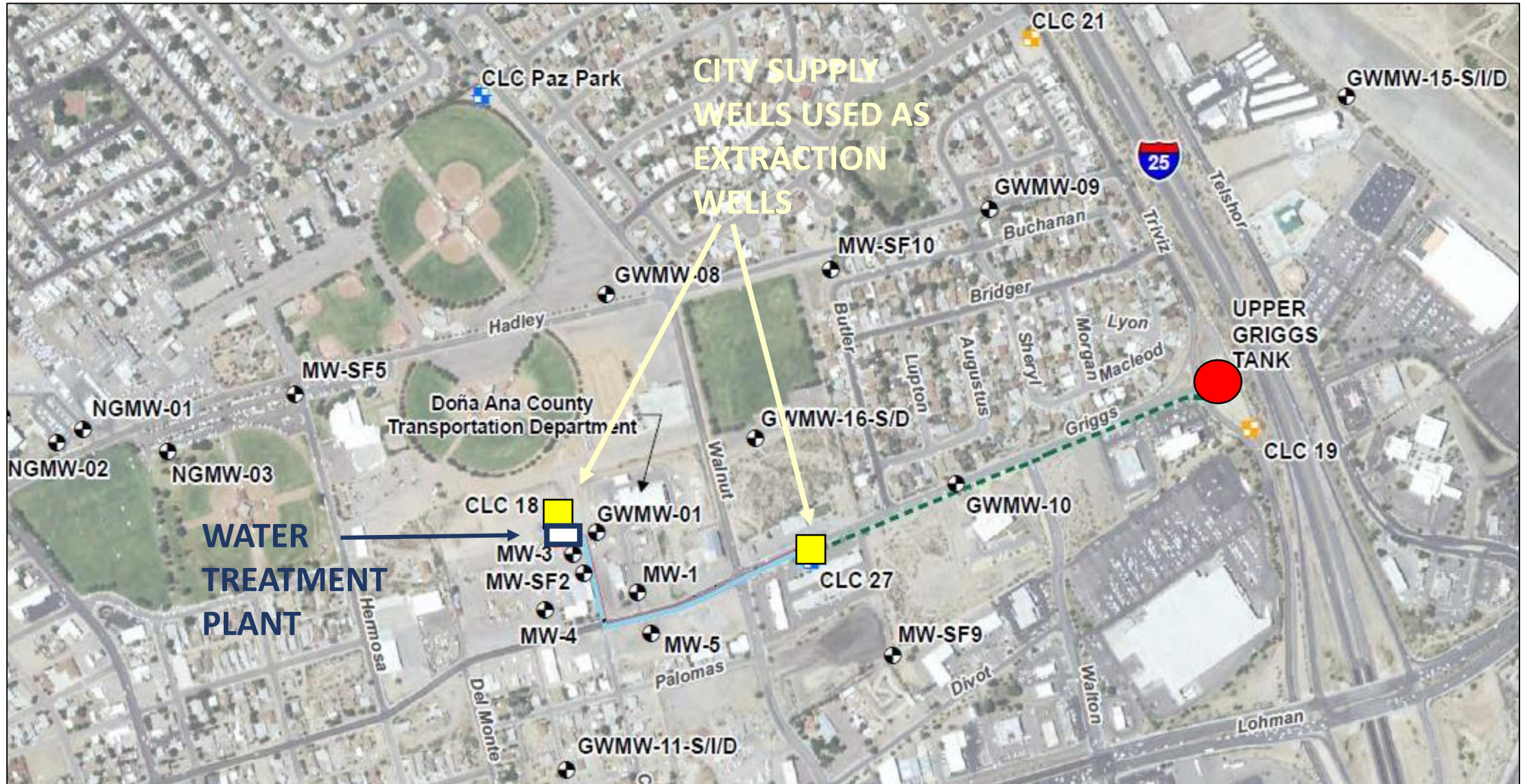
EPA 2005 CONCEPTUAL MODEL OF PCE RELEASE TO GROUND WATER



EPA SELECTED GROUND WATER REMEDY

- HYDRAULIC CONTROL OF PCE PLUME
 - Operate Existing Municipal Wells as Extraction Wells
- RESTORE GROUND WATER TO BENEFICIAL USE AS A DRINKING WATER SUPPLY SOURCE
 - By Extraction and Treatment of Ground Water
 - Treated Ground Water Available for Delivery into Public Water Supply
- INSTITUTIONAL CONTROL
 - Temporary Well Drilling Prohibition
 - Prevent Exposure

EPA SELECTED GROUND WATER REMEDY



WATER TREATMENT PLANT

TWO 28,000 GALLON HOLDING TANKS
EXTRACTED/RAW WATER AND
TREATED/FINISHED WATER



STACKED-TRAY AIR STRIPPER WATER TREATMENT SYSTEM

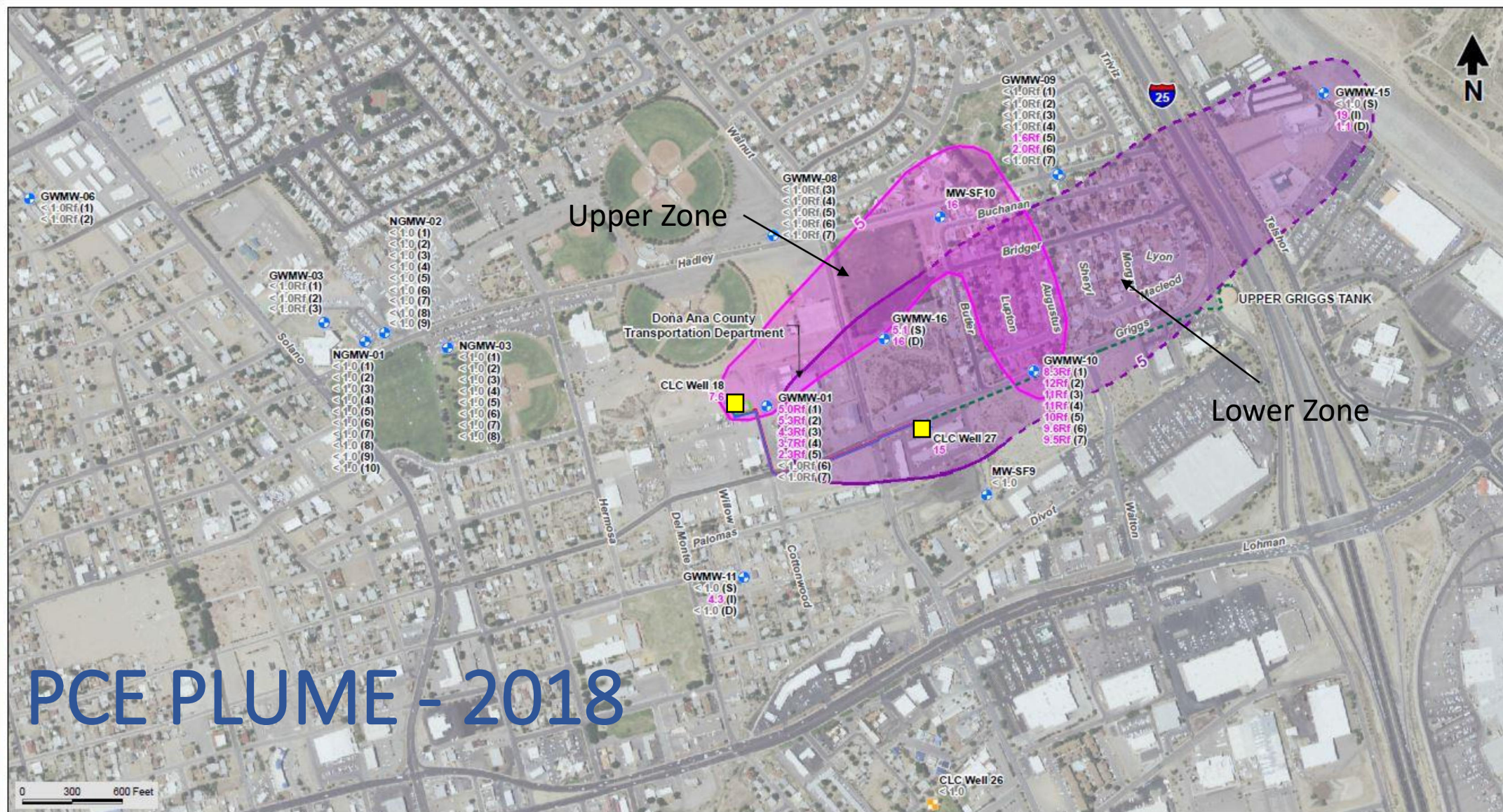
ENLARGED PHOTO OF STACKED TRAYS

INSTITUTIONAL CONTROL

NM OFFICE OF STATE ENGINEER (OSE):

- Issued Temporary Well Drilling Prohibition – 2011





Explanation

- Monitor well
- Public supply well
- Inactive public supply well
- 6" raw water line
- 8" finished water line
- Treatment compound
- Existing 10" water line to reservoir

- PCE concentration contour (µg/L), upper
- PCE concentration contour (µg/L), lower (dashed where inferred)
- CLC Pumping Well

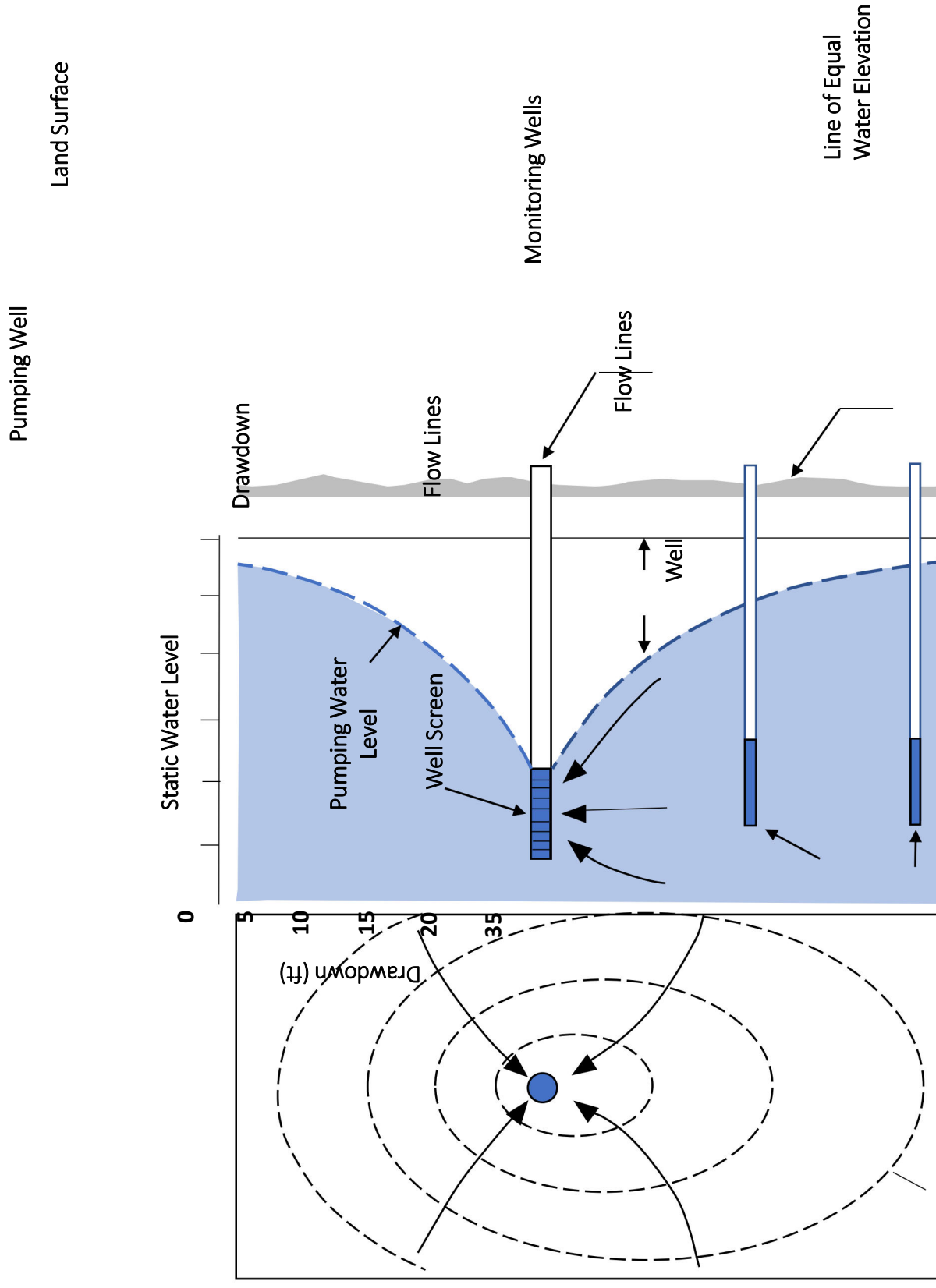
MW-SF10 Well designation

- 16** Concentration (µg/L)
- < 1.0** Not detected above reporting limit
- Rf** Rejected, the data are unusable. FLUTE well liner lacks integrity.

Source: 1. National Agricultural Imagery Program May 2016.
2. PCE plume provided by Shoemaker and Associates.

GRIGGS-WALNUT GROUND WATER PLUME SITE
REMEDIAL ACTION
PCE in Groundwater, December 2018

CONCEPTUALIZATION – HYDRAULIC CONTROL OF A PLUME



CONE OF DEPRESSION
CROSS SECTIONAL VIEW

CONE OF DEPRESSION
MAP VIEW

MONITORING WELL NETWORK



WELL CLC-18

PCE LEVELS AND PUMPING VS TIME

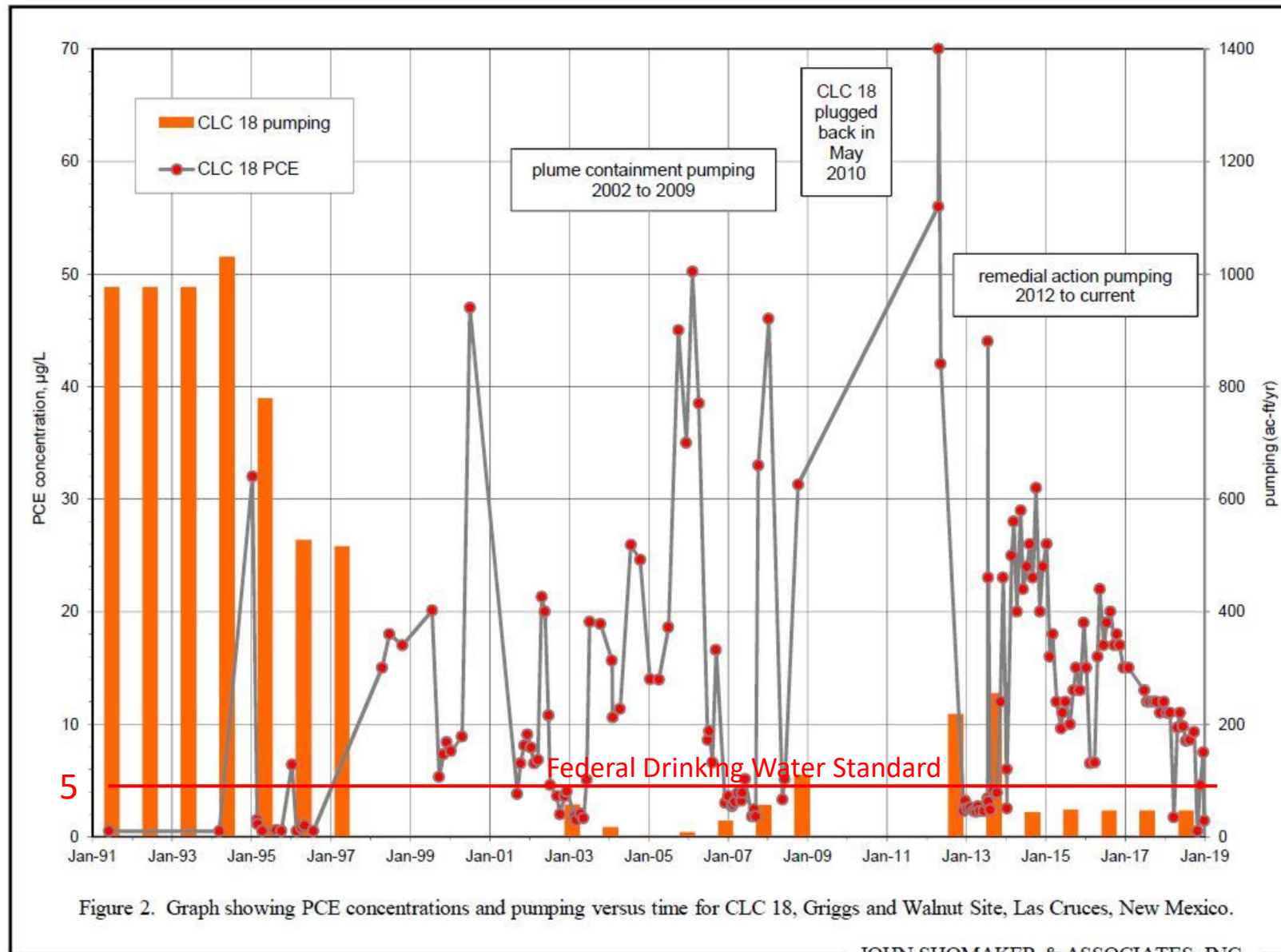
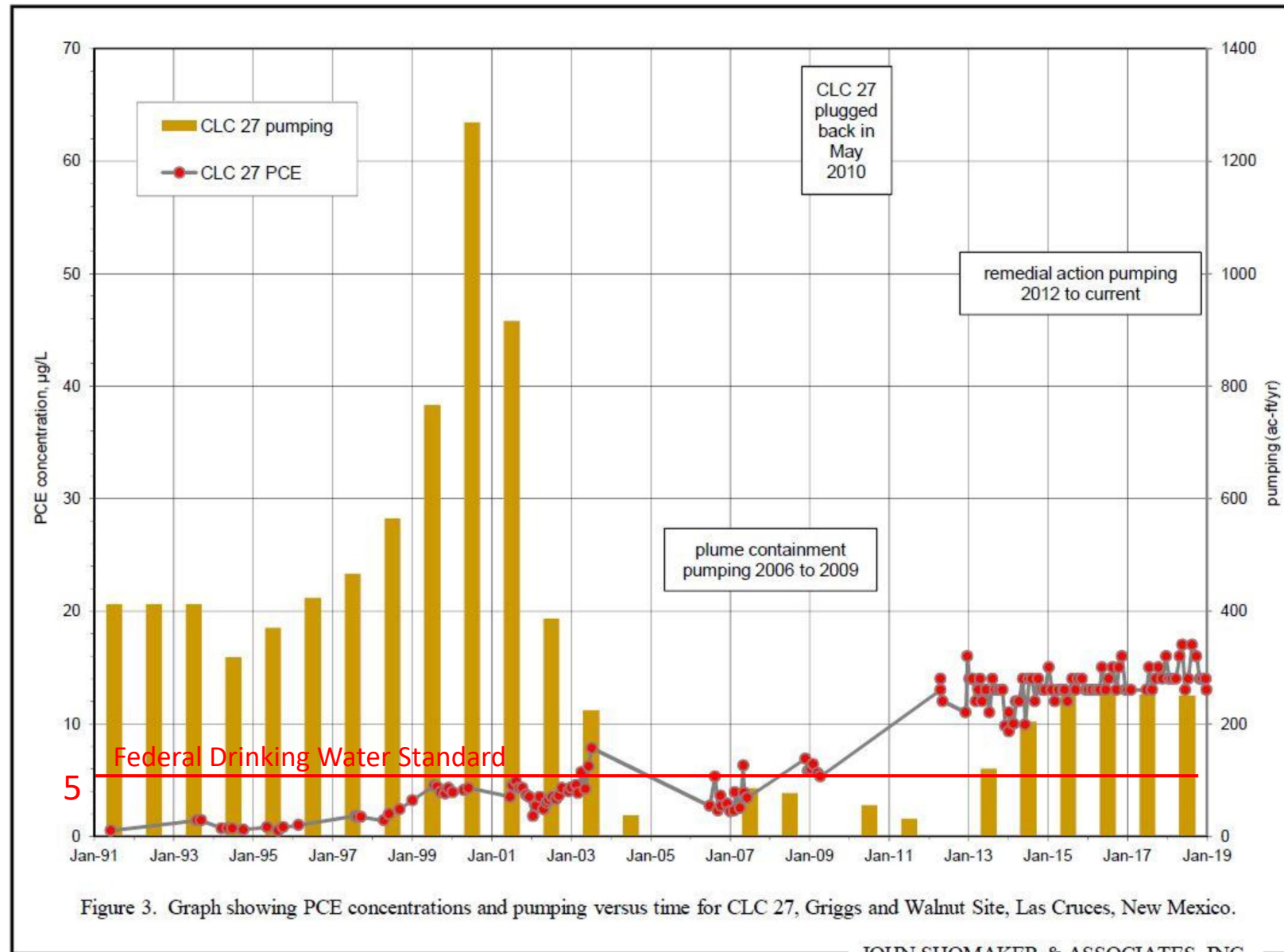


Figure 2. Graph showing PCE concentrations and pumping versus time for CLC 18, Griggs and Walnut Site, Las Cruces, New Mexico.

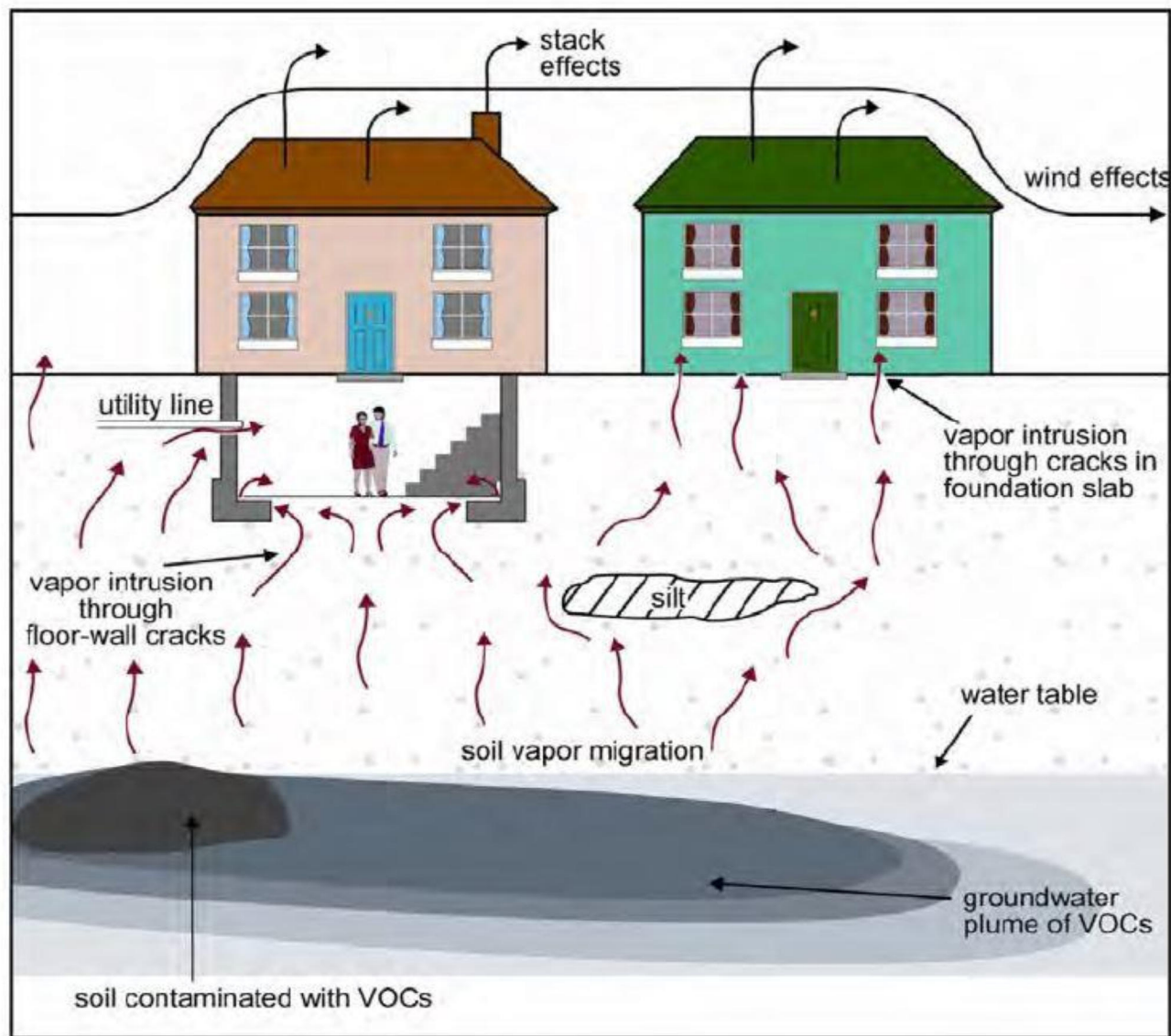
WELL CLC-27

PCE LEVELS AND PUMPING VS TIME



2016 FIVE-YEAR REVIEW FINDINGS

- PROTECTIVENESS DETERMINATION DEFERRED
 - Indoor Air Vapor Intrusion Pathway – Warranted Investigation
 - Ground Water Pathway – No Known Human Exposure
- KEY RECOMMENDATION:
 - Assess Indoor Air Vapor Intrusion Pathway - Completed

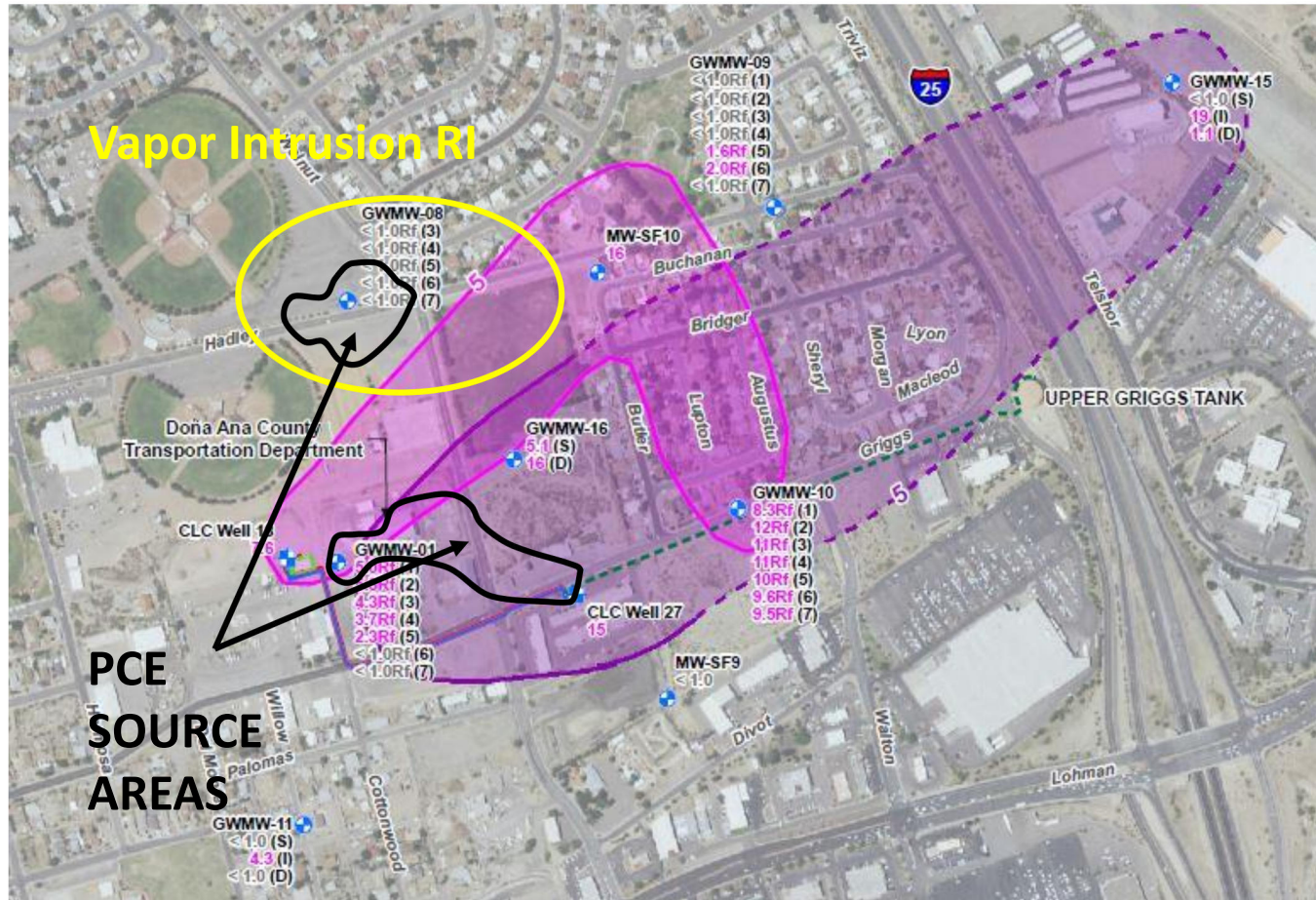


INDOOR AIR VAPOR INTRUSION

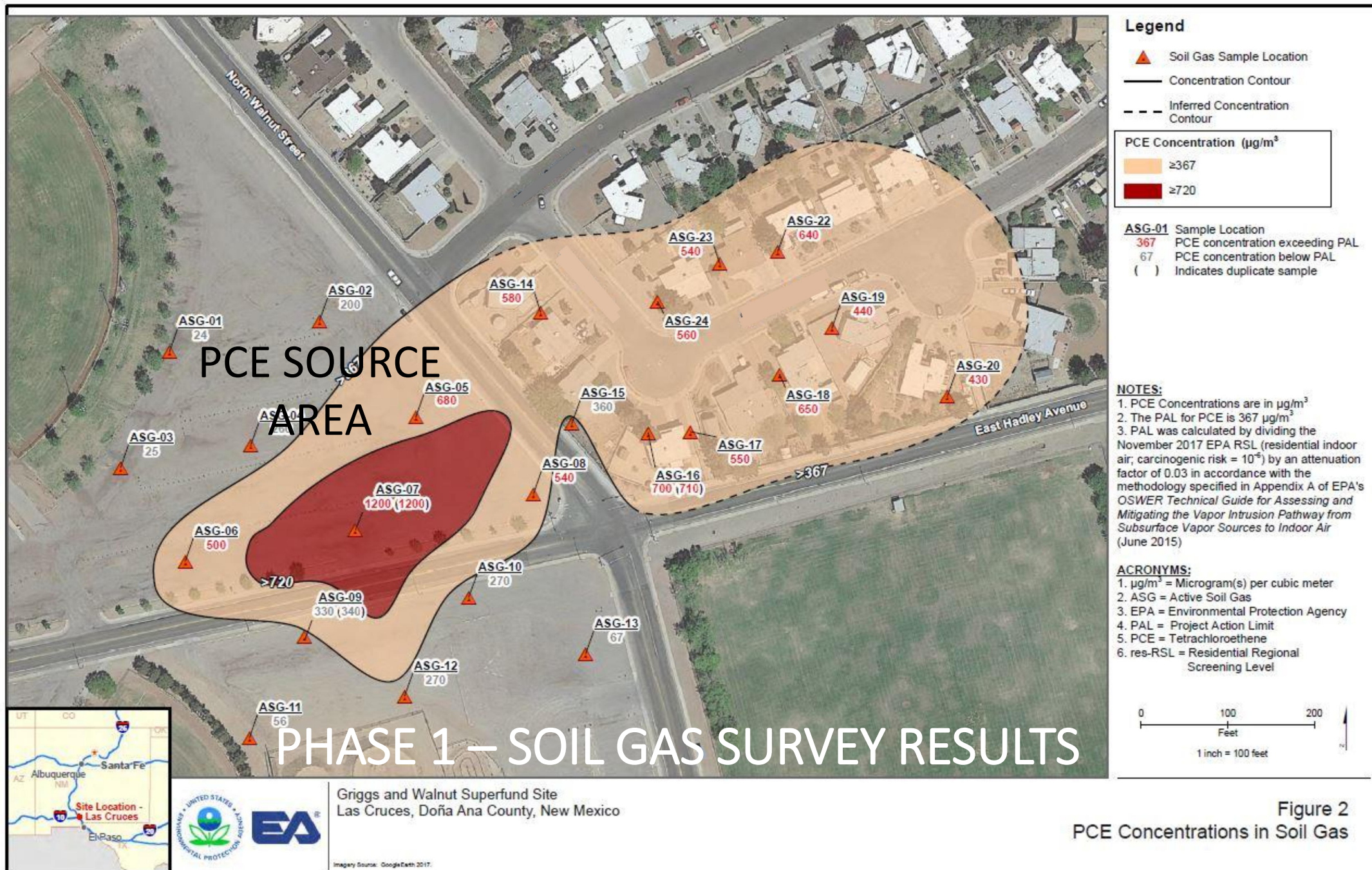
ILLUSTRATION

VOCs – Volatile Organic Compounds

EPA VAPOR INTRUSION REMEDIAL INVESTIGATION (RI)



- INITIATED IN 2017
- TARGETED PCE SOURCE AREA AND RESIDENTIAL COMMUNITY
- 2-PHASED APPROACH
 - Phase 1 – Exterior Soil Gas Survey
 - Phase 2 – Indoor Air/Sub-slab



PHASE 2 - INDOOR AIR/SUB-SLAB AIR SAMPLE RESULTS

- FIVE HOMES SAMPLED IN 2019
- SUB-SLAB SAMPLE RESULTS
 - PCE Detected above Project Action Limit of 367 µg/L beneath Foundation Slabs
- INDOOR AIR SAMPLE RESULTS
 - PCE and TCE Detected below Health-based Screening Levels of 11.0 and 0.48 µg/m³

***NO
CONTAMINANTS
EXCEEDED
HEALTH-BASED
SCREENING
LEVELS IN
INDOOR AIR
SAMPLES!***

µg/L = micrograms per liter
µg/m³ = micrograms per cubic meter

NEXT STEPS

- COMPLETE VAPOR INTRUSION REMEDIAL INVESTIGATION REPORT – FALL 2019
- PREPARE AMENDMENT TO 2016 FIVE-YEAR REVIEW REPORT - 2020
- CONTINUE TO OPERATE GROUND WATER REMEDY
- CONTINUE TO MONITOR GROUND WATER
- NEXT FIVE-YEAR REVIEW - 2021

SITE DOCUMENTS

AVAILABLE TO THE PUBLIC AT FOLLOWING REPOSITORIES:

BRANIGAN PUBLIC LIBRARY

200 EAST PICACHO, LAS CRUCES, NM 88001

NEW MEXICO ENVIRONMENT DEPARTMENT

GROUND WATER QUALITY BUREAU

HAROLD RUNNELS BUILDING

1190 ST. FRANCIS DRIVE

SANTA FE, NM 87502-6110

COMMUNITY OUTREACH

- WHAT ARE PREFERRED METHODS FOR COMMUNITY OUTREACH?
 - EPA WEBSITE
 - SOCIAL MEDIA
 - ELECTRONIC MAIL
 - NEWSPAPER NOTICES
 - COMMUNITY BULLETINS
 - COMMUNITY MEETINGS

EPA WEBSITE:

<http://www.epa.gov/superfund/griggs-walnut>

CONTACT INFORMATION

- **NELLY SMITH**

USEPA-Region 6

Tel: 214-665-7109

Toll Free: 1-800-533-3508

E-mail: smity.nelly@epa.gov

JASON MCKINNEY

USEPA-Region 6

Tel: 214-665-8132

Toll Free: 1-800-533-3508

E-mail: mckinney.jason@epa.gov

- **ANTHONY McGLOWN**

NM Environment Department

Tel: 505-827-2908

E-mail: Anthony.McGlown@state.nm.us

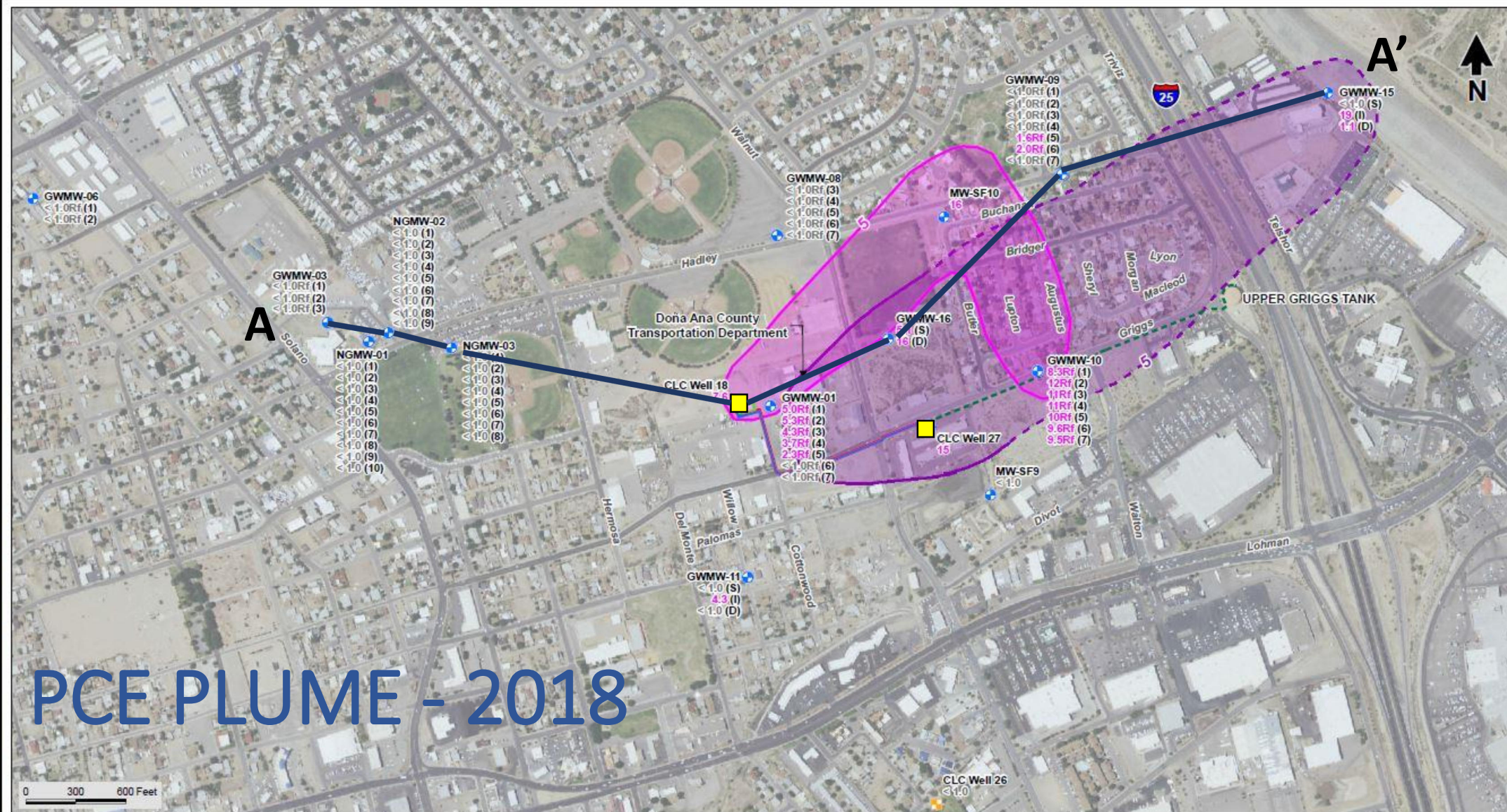
ADRIENNE WIDMER

Las Cruces Utilities/Water

Tel: 575-528-3514

E-mail: awidmer@las-cruces.org

OTHER SLIDES



PCE PLUME - 2018

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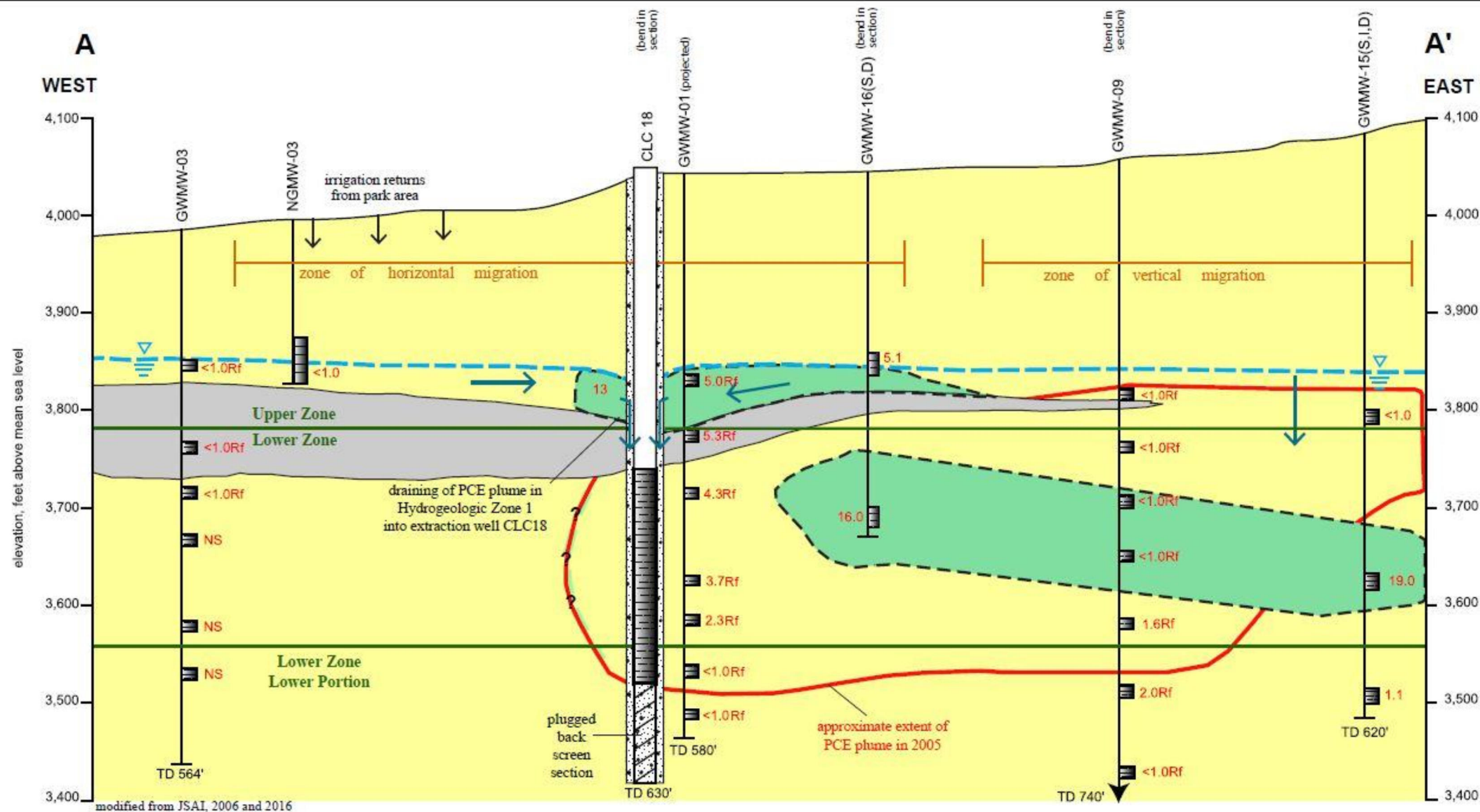
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GRIGGS-WALNUT GROUND WATER PLUME SITE
REMEDIAL ACTION
PCE in Groundwater, December 2018



EXPLANATION

- predominantly sand, silt, and clay
- predominantly sand and gravel
- PCE concentrations >5 µg/L (2018)
- approximate water table (wells not to horizontal scale)
- screen section
- direction of flow
- 2.3 PCE concentration, µg/L (2018)
- Rf rejected, the data are unusable, FLUTE well liner lacks integrity
- dashed where inferred

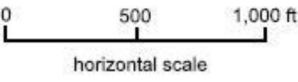


Figure 4. Hydrogeologic cross-section A-A' with winter 2018 PCE concentrations, Griggs and Walnut Site, Las Cruces, New Mexico.

WATER LEVEL ELEVATION MAP - 2018

Upper Hydrogeologic Zone

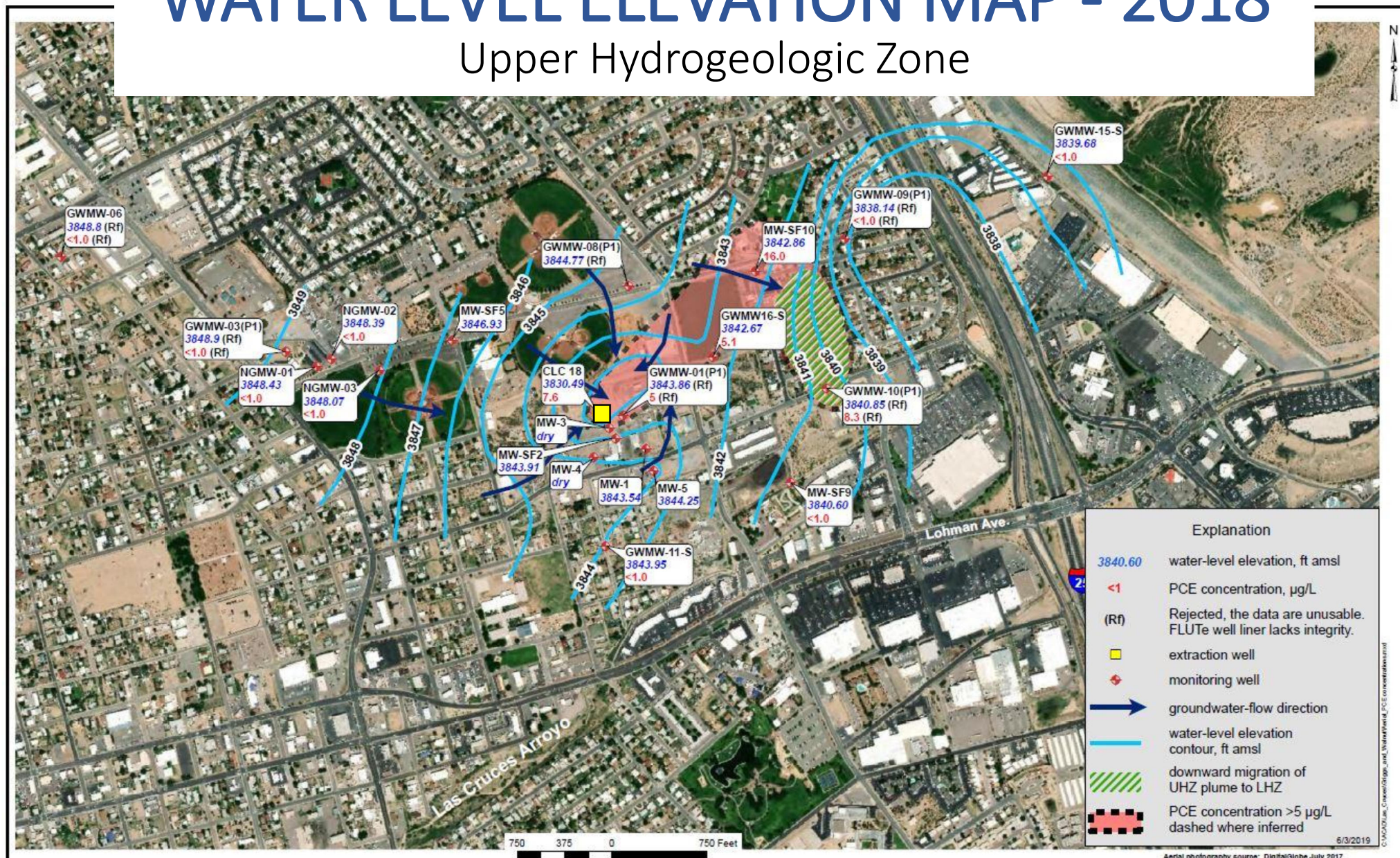


Figure 8. Aerial photograph showing December 2018 water-level elevation contours and PCE concentrations for the Upper Hydrogeologic Zone, Griggs and Walnut Site, Las Cruces, New Mexico.

WATER LEVEL ELEVATION MAP - 2018

Lower Hydrogeologic Zone

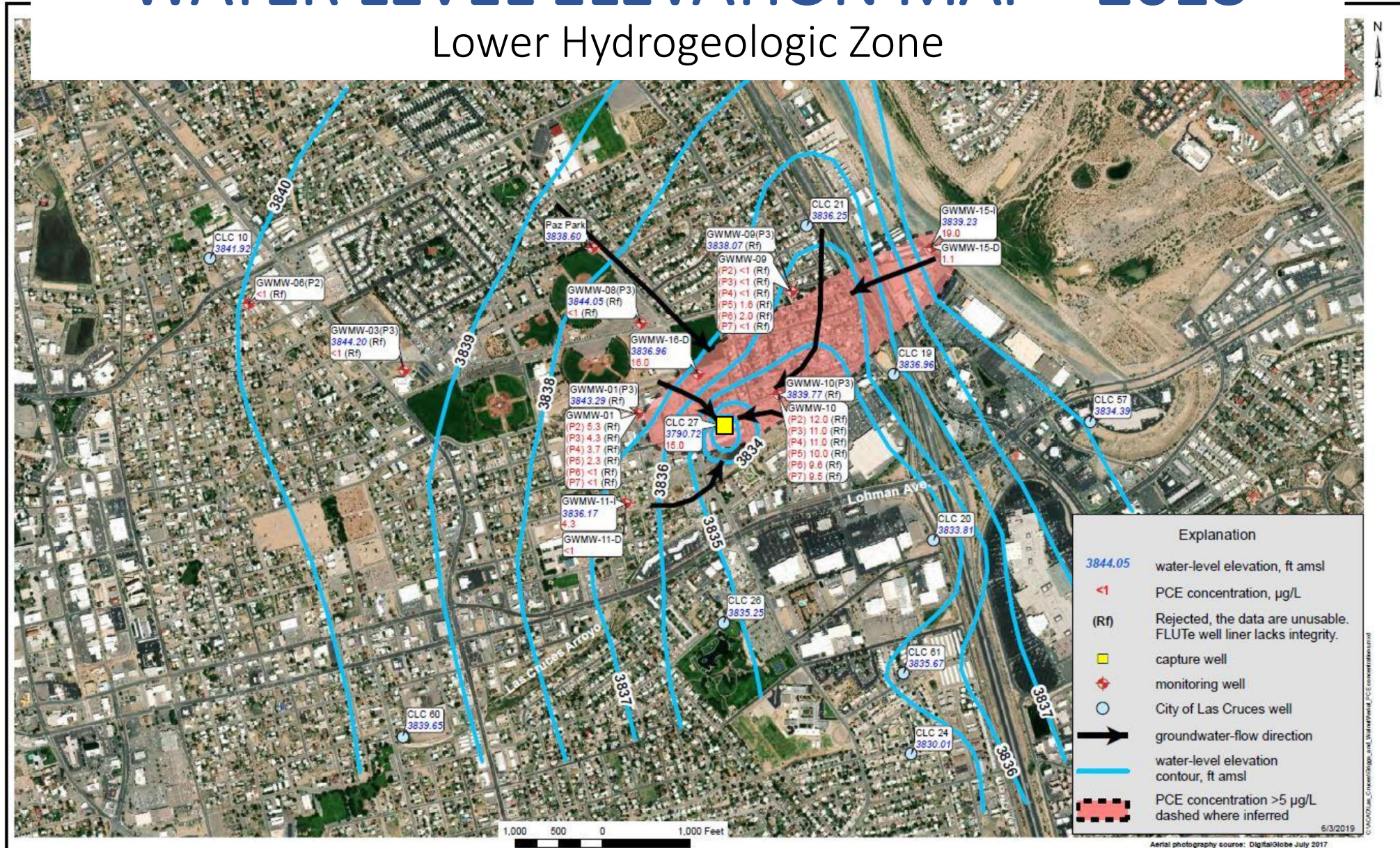
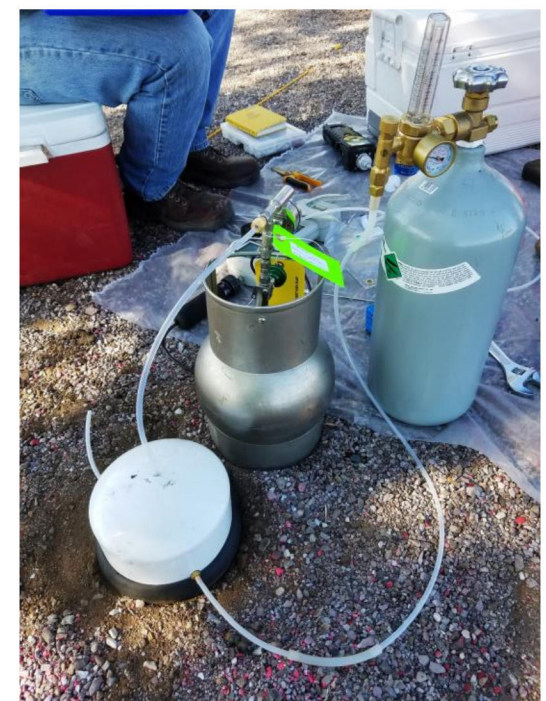


Figure 9. Aerial photograph showing December 2018 water-level elevation contours and PCE concentrations for the Lower Hydrogeologic Zone, Griggs and Walnut Site, Las Cruces, New Mexico.



SOIL GAS SURVEY

AIR SAMPLE RESULTS

- SUB-SLAB – PCE CONCENTRATIONS
 - Ranged from 150 to 920 $\mu\text{g/L}$
- INDOOR/OUTDOOR AIR - PCE CONCENTRATIONS
 - Ranged from 0.026 $\mu\text{g/m}^3$ (outdoor sample) to 0.96 $\mu\text{g/m}^3$ (indoor sample)
- INDOOR/OUTDOOR AIR - TCE CONCENTRATIONS
 - Ranged from 0.029 $\mu\text{g/m}^3$ (outdoor sample) to 0.22 $\mu\text{g/m}^3$ (indoor samples)

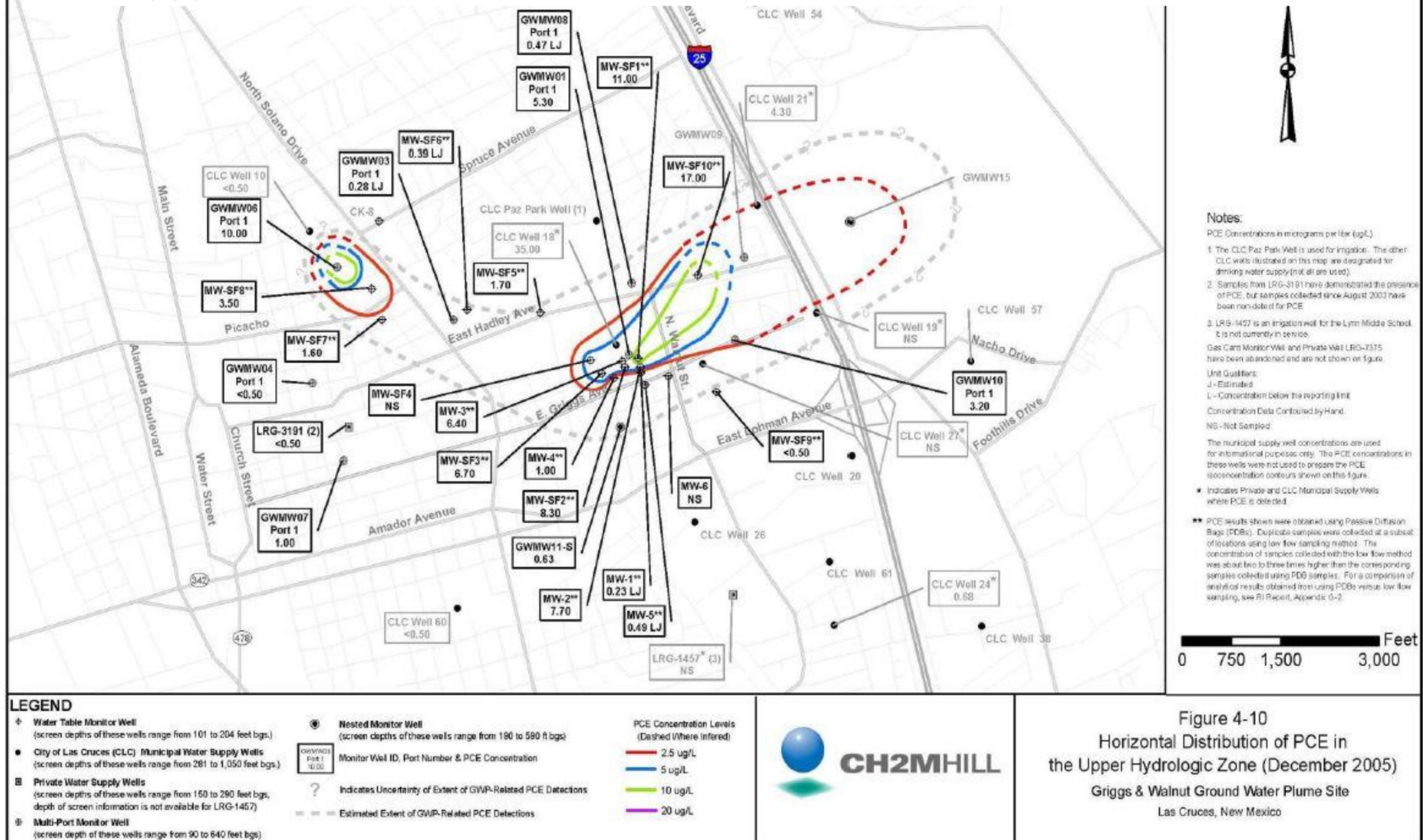
INDOOR AIR SCREENING LEVELS

TCE = 0.48 $\mu\text{g/m}^3$

PCE = 11.0 $\mu\text{g/m}^3$

HORIZONTAL DISTRIBUTION OF PCE IN GROUND WATER

EPA 2005



HORIZONTAL DISTRIBUTION OF PCE IN SOIL GAS

EPA 2005 REMEDIAL INVESTIGATION

