

**Broadway-Pantano (BP) Water Quality Assurance Revolving Fund (WQARF) Site  
Community Advisory Board (CAB) Meeting**

**MINUTES**

**Tuesday, March 8, 2016**

**6 p.m. - 8 p.m.**

**Wilmot – Murphy Public Library**

**530 N. Wilmot Rd.**

**Tucson, Arizona 85711**

CAB Members present: Bill Petroustson (Co-Chair), Janet Marcus (Co-Chair), Michael Smith, Jackie Olson, Mark Brusseau, Cheri Bludau

CAB Members absent: Jean Sabo, Wanda Ryckman

ADEQ Staff (and consultants) in attendance: Gretchen Wagenseller (Project Manager), Wendy Flood Community Involvement Coordinator (CIC), Matt Narter (Hydrologist), Natalie Chrisman Lazarr (Amec Foster Wheeler – ADEQ Consultant), Rachel Romo (Amec Foster Wheeler – ADEQ Consultant)

Members of the public present: Michael Leblanc (Pima County), U of A students

The meeting began at 6:05 p.m.

**1. Call to order/introductions**

Ms. Wendy Flood opened the meeting with introductions of CAB members, ADEQ staff, public attendees, and Ms. Natalie Chrisman Lazarr from Amec Foster Wheeler.

**2. Acceptance and/or changes to May 19, 2015 minutes**

Mr. Michael Smith requested a change to Item Number 7 that listed Michael Smith as a professor at U of A which is incorrect; this should be updated to refer to Dr. Mark Brusseau. Ms. Flood indicated that the minutes would be revised to make the update and show that Mr. Smith and Dr. Brusseau both spoke on the topic. Mr. Smith raised a concern about Item Number 9 that shows that three chemicals are discussed but the presentation only shows two. In Ms. Gretchen Wagenseller's review of the map she indicated that she believed there was a typo. Ms. Flood will review the previous recording and add this as an agenda item for the next meeting. Ms. Cheri Bludau mentioned that she was not listed as present or absent from the meeting. Ms. Flood made a note to update that Ms. Bludau was absent from the meeting. Ms. Wagenseller asked to show that Ms. Janet Marcus is Co-Chair. Mr. Bill Petroustson made a motion to accept the minutes as revised. The motion was seconded by Dr. Brusseau and was passed. [6:18]

Mr. Petroutson and Ms. Marcus (co-chairs) agreed to let Ms. Flood lead the meeting. Ms. Flood asked for an update regarding a letter that was previously discussed and that Mr. Petroutson is writing. He and Ms. Marcus will sign the letter after the meeting and will send it to ADEQ staff.

### **3. Feasibility study and budget update, overview of In-Situ chemical oxidation**

[6:21] Ms. Chrisman Lazarr began her presentation. Mr. Smith questioned why the data within the presentation was a year old. Ms. Wagenseller explained that ADEQ had contracting issues that delayed progress of reporting. Mr. Smith asked for additional clarification on the ground water modeling slide. Ms. Chrisman Lazarr explained in more detail the graph and figures. Ms. Wagenseller also clarified that the maps within the presentation are examples and once the feasibility study is done then a presentation will be given to the CAB of results. [6:45] Ms. Jackie Olson arrived to the meeting. Ms. Bludau expressed concern about gates being left open while field staff are on-site. Ms. Wagenseller said she would contact the property owner because there is a history of break-ins. Ms. Bludau raised the question about available funding for the future plans of the project. Ms. Wagenseller clarified that funding is becoming more reliable and contracting will begin at the beginning of the fiscal year (July) so the project can stay on track with the schedule.

[7:19]

### **4. \*Call to the public**

No public comments or statements.

### **5. Future meeting/agenda**

Mr. Smith asked that additional information be presented on the applicability of bioremediation to this site. There were also follow up discussions regarding previous minute Item Number 9. September was discussed as the timeframe for the next meeting, Thursday evening works well for CAB members. The tentative meeting date and time is the 15<sup>th</sup> of September at 6 p.m. Mrs. Flood noted that she would be reviewing the attendance history of CAB members to assess ongoing levels of participation.

### **6. Adjournment**

[7:25]

*This meeting was recorded on a digital device as a record of the proceedings. To listen to a recording, or for additional documents mentioned in these minutes, contact ADEQ.*



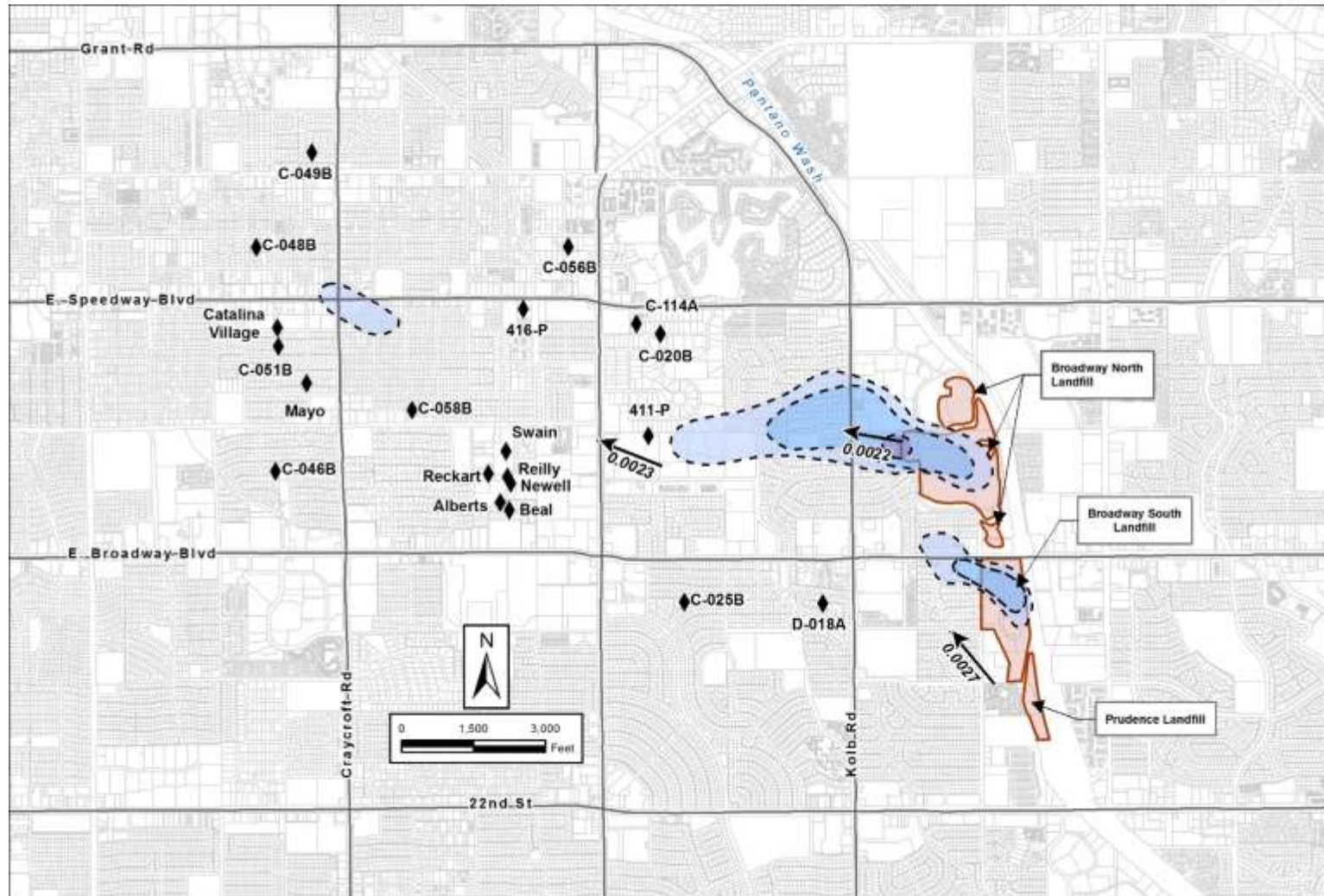
# Broadway Pantano WQARF Site Community Advisory Board Meeting March 9, 2016

Feasibility Study Update and  
Overview of In-Situ Chemical Oxidation Testing



- Update on current site work
  - Groundwater monitoring
  - Dross Area inspections and air monitoring
  - Groundwater modeling
  - Development of remedial alternatives
- Overview of pilot testing
  - ISCO background
  - Pilot test objectives
  - Conceptual design
  - Test plan
  - What to expect
- Look Ahead

# 2015 Groundwater Monitoring

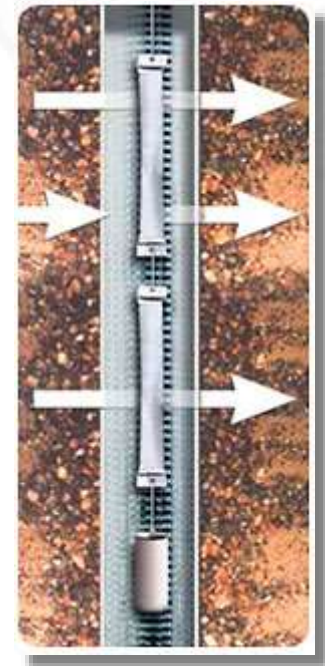


## Feb-March 2015 PCE Plume Map

- ◆ Drinking Water Well
- PCE Concentration  
(Dashed Where Inferred)
- 5µg/L
- 10µg/L
- 100µg/L
- ← Groundwater flow direction and gradient
- Landfill Boundaries



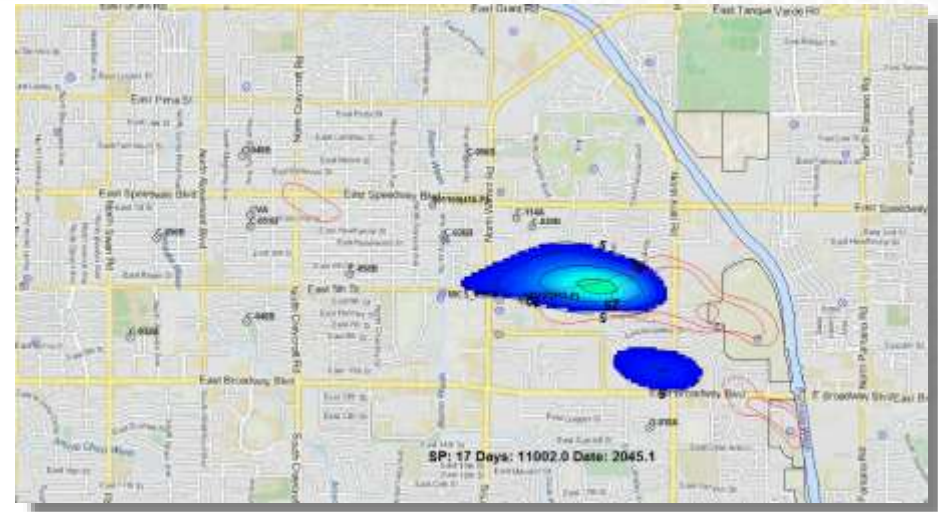
- Monitoring program changes
  - ADEQ responsible for monitoring wells that were previously monitored by COT-ES
  - Update of sampling frequency (*semi-annual, annual, and biennial*)
- Overview of 2016 program
  - Combination of PDB and wellhead sampling
  - Conducted in February 2016



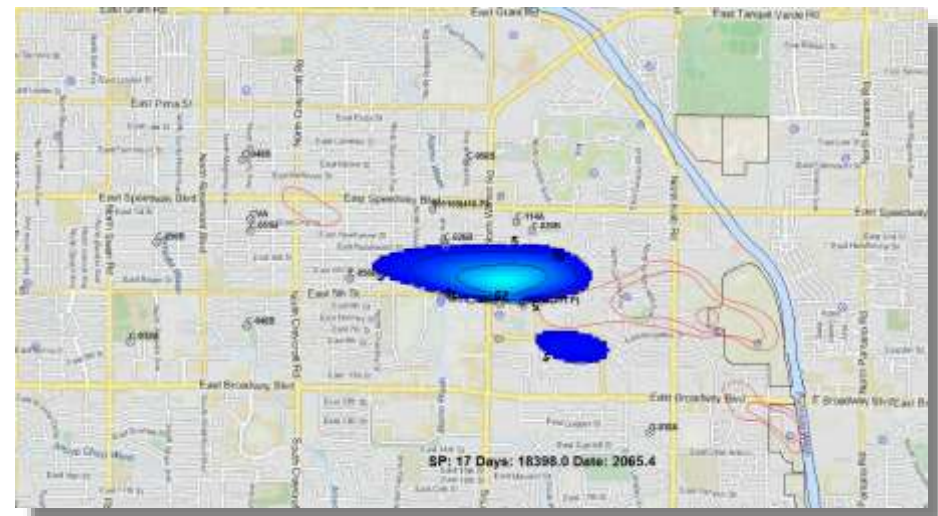


- Semiannual Inspections
  - December 2015 and May 2016
  - Minor repairs
- Air Monitoring
  - Assess current and future risks
  - Dust and soil sampling
  - April 2016

- 100-Year Forecast Simulations
  - Natural attenuation
  - Multiple groundwater pump and treat scenarios
- Sensitivity Analysis
- Preparation of a Model Report



30-Years – 2045



50-Years – 2065



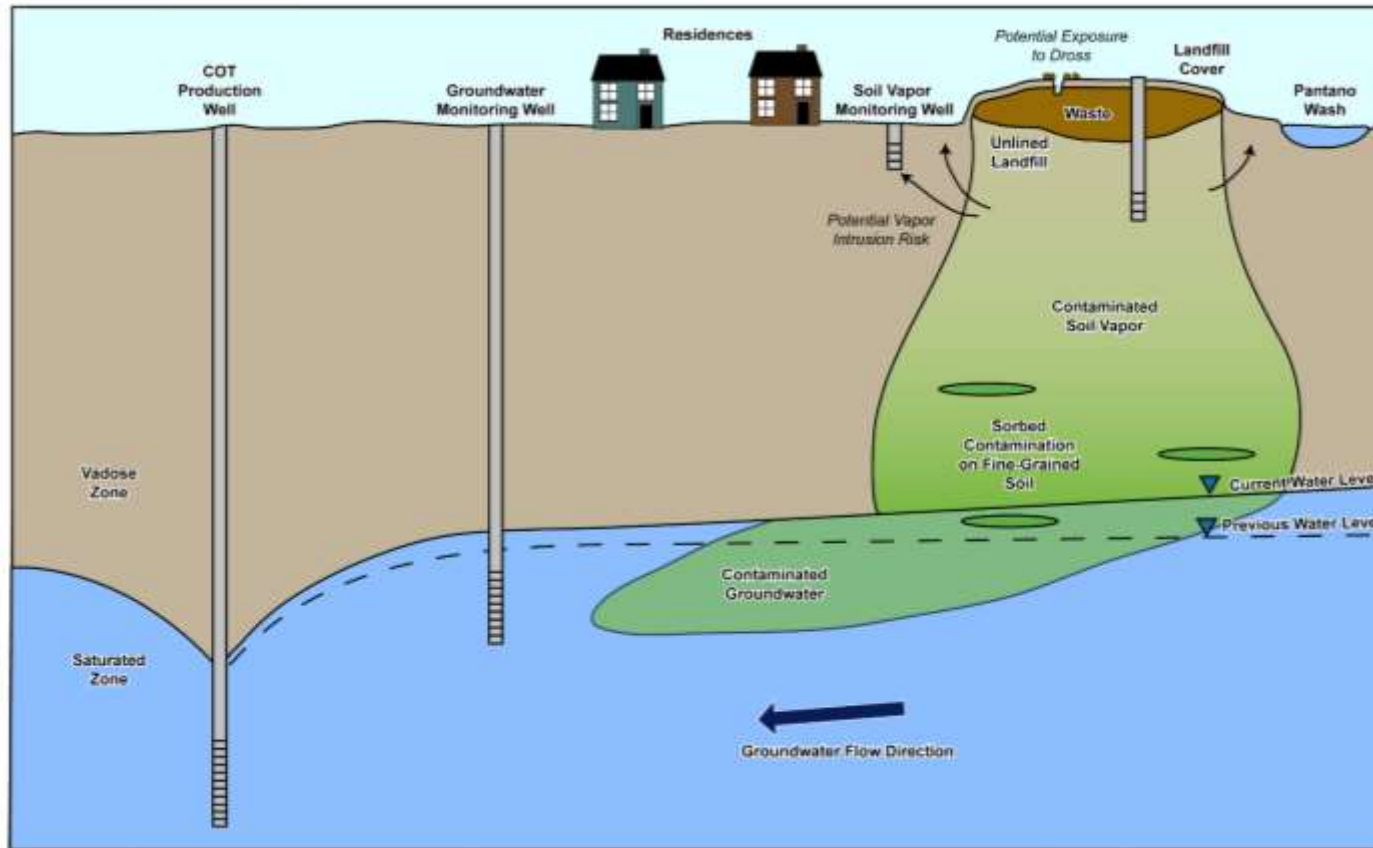
- Identification of alternatives by operating unit
  - Technology screening
  - Conceptual design
- Alternative comparison
  - Practicability
  - Risk
  - Cost
  - Benefit or Value

*In Situ Chemical Oxidation (ISCO) is the injection of oxidizing agents directly into the subsurface to degrade contamination*

- Long history of development and use
- Treatment of a wide range of contaminants
- Effectiveness can be highly site-specific

Oxidant	Chemical
Permanganate	KMnO <sub>4</sub> or NaMnO <sub>4</sub>
Hydrogen Peroxide	H <sub>2</sub> O <sub>2</sub>
Ozone	O <sub>3</sub>
Persulfate	NaS <sub>2</sub> O <sub>8</sub>
Perozone	H <sub>2</sub> O <sub>2</sub> plus O <sub>3</sub>

# Why ISCO?

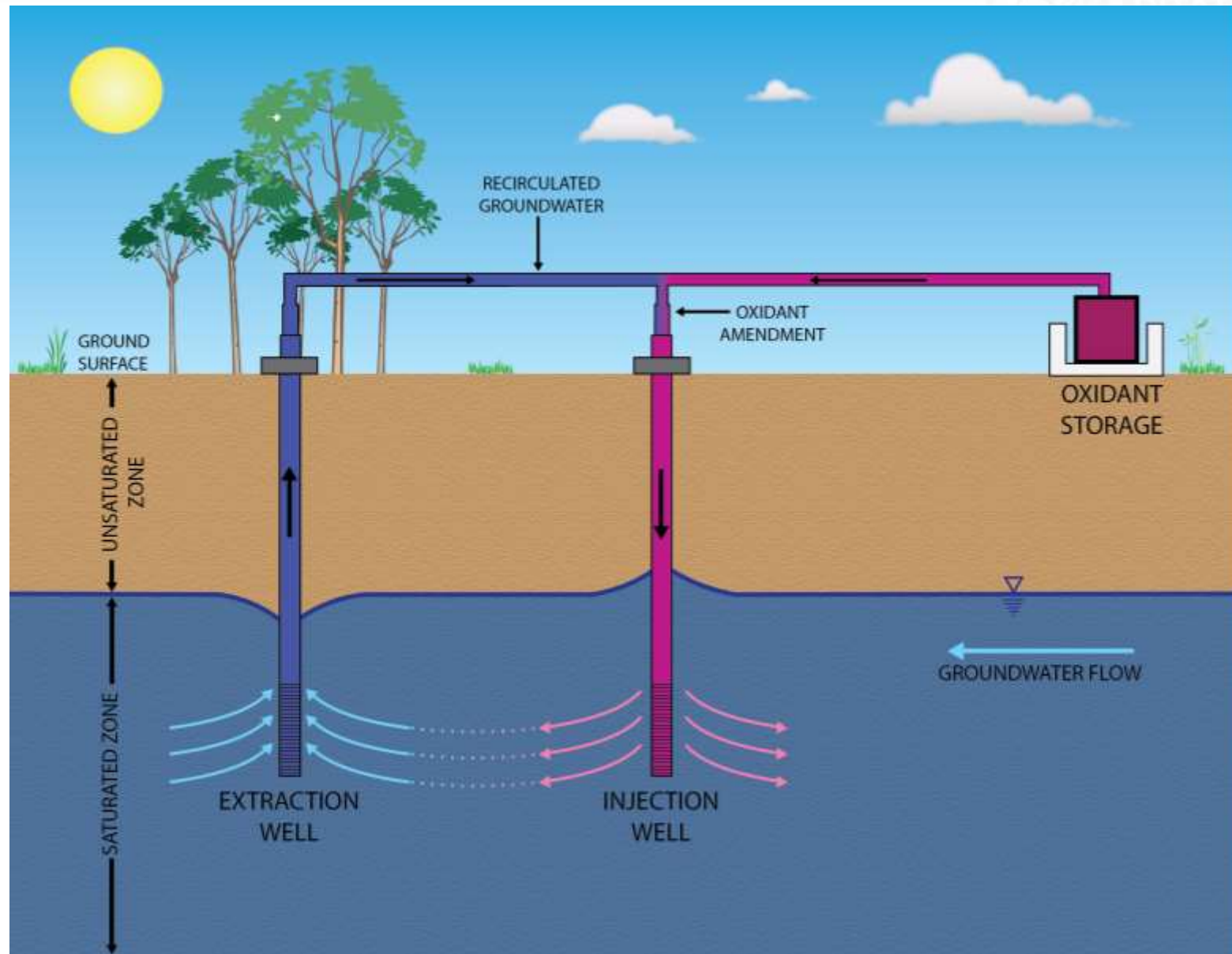


- Address localized regions of residual contamination
- Promote timely cleanup of groundwater plume
- Demonstrated at other Arizona sites

- Confirm that ISCO is technically feasible, cost-effective and reliable
- Collect information supporting design of a full-scale oxidant injection system
  - Natural oxidant demand
  - Oxidant dosage
  - Oxidant distribution
  - Changes in aquifer chemistry due to oxidant injection
- Address high concentrations in current plume



# ISCO Pilot Study – Conceptual Design



# ISCO Pilot Study – Conceptual Design



- Study components
  - Four new groundwater wells
  - Temporary pilot study compound
    - Storage tanks
    - Process equipment and piping
    - Temporary electrical connection
    - Security fencing
- Permanganate selected as oxidant

- Jan-Feb 2016 – Well installation and development
- End of Feb 2016 – Treatment compound construction
- Feb-May 2016 – Pilot testing
- June 2016 – Removal of treatment compound

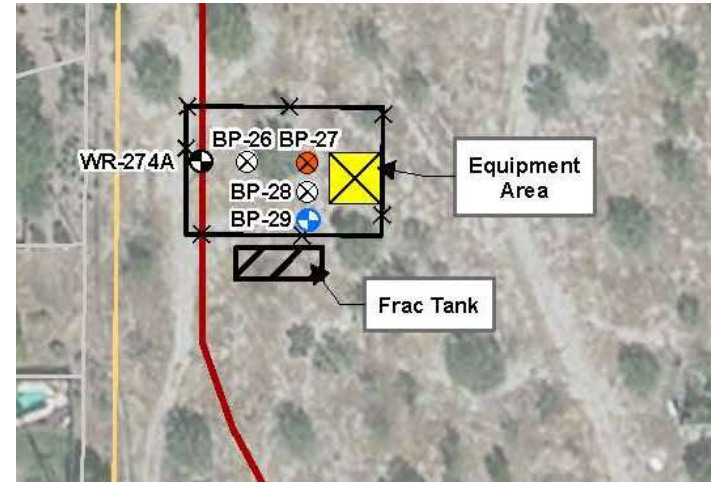


Time Period	Description
Weeks 0 to 3	Batch Injection
Weeks 4 to 5	Post Test Sweeping
Weeks 6 to 8	Downgradient Recirculation
Weeks 9 to 10	Post Test Sweeping
Weeks 11 to 12	Lateral Recirculation

- Regular site visits to monitor test operations
  - Oxidant monitoring
  - Water level gauging
  - Groundwater sampling
- Ongoing assessment of changes in water chemistry following completion of study



- Contractor personnel working at the landfill
- Limited noise
- Groundwater recirculation activities
- Storage and injection of dilute concentrations of oxidant into the subsurface



- For ISCO pilot study concerns:

Amec Foster Wheeler

*Natalie Chrisman Lazarr (Project Manager)*  
*(602) 316-1324*

- For site information:

ADEQ

*Gretchen Wagenseller (Project Manager)*  
*(520) 628-6708*

- 2016 groundwater monitoring and pilot study results available in June 2016
- Groundwater monitoring and Dross Area inspection program will continue
- ADEQ planning on Feasibility Study and, if possible, Proposed Remedial Action Plan completion during Fiscal Year 2017.

- Questions?

