ADEQ Arizona Department of Environmental Quality

MEETING MINUTES

OU #10-096

Phoenix-Goodyear Airport (PGA) Area/Western Avenue Plume
Community Advisory Group (CAG) Meeting

Thursday, May 6, 2010 at 6:30 p.m.
Avondale City Hall, Sonoran Conference Room
11465 W. Civic Center Drive, Avondale, AZ 85323

FINAL MINUTES

CAG Members in Attendance:
Diane Krone
Brenda Holland
Thomas Jones
Susan Kagan
Lisa Amos
David Ellis

EPA Staff in Attendance:
Catherine Brown, PGA North Project Manager
Viola Cooper, Community Involvement Coordinator
Rich Muza, Hydrogeologist

ADEQ Staff in Attendance:
Harry Hendler, Federal Projects Unit Manager
Nicole Coronado, PGA North Project Manager
André Chiaradia, PGA South and Western Avenue Project Manager
Felicia Calderon, Community Involvement Coordinator

Others in Attendance:
Stephanie Koehne, AMEC Geomatrix
Leanne Austrins, CH2M Hill
Phil Whitmore, CH2M Hill
Mary Moore, Lindon Park Neighborhood Association
Matthew Fesko
Nadine Johnson
Jeff Sussman, Goodyear Tire
Dennis Maslonkowski, TRC
Jeff Littell, Brown and Caldwell
Jennie Conger, Tierra Dynamic Co.
Shannon Lloyd, LATA
Tom Suriano, Clear Creek Associates
Nancy Nesky, ITSI
Annette Lampshire
Ben King, Litchfield Park
Joe Browner
Marilyn DeRosa, City of Avondale
Ailong Gu, ITSI

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1. Call to Order / Introductions – Diane Krone

Ms. Krone, CAG Co-chair, facilitated the meeting. CAG members and all meeting attendees introduced themselves. Ms. Krone advised the CAG that agenda items number 3 and 2 would be switched in their presentation order.

2. Update of PGA South activities – Jeff Sussman, Goodyear Tire & Rubber Company

Mr. Sussman discussed current activities, status on ongoing cleanup, and upcoming activities.

See slide presentation below

Ms. Holland inquired of Mr. Sussman if hydraulic barriers like those found in the southern boundary of the northern C unit plume will be used in other locations to restrict the spread of contamination. Mr. Sussman responded that the injection wells in Subunit A and southern Subunit C will be maintained and ongoing throughout the project. He then mentioned issues regarding the rehabilitation of wells in northern Subunit C plume and estimated a May 17th start date for work on that well. Ms. Holland asked if they will continue to monitor well activity in northern Subunit C plume. Mr. Sussman assured Ms. Holland that monitoring will continue.

3. Update of PGA North activities –Stephanie Koehne, AMEC Geomatrix

Ms. Koehne introduced herself and stated that Kurt Craig, the former project manager, relocated to the Denver area, but will continue to lend his support to the project. Ms. Koehne indicated to the CAG that she will discuss updated PGA North activities, groundwater plume, current groundwater investigation, existing treatment systems, onsite re-vegetation, and the northeast regional treatment system expansion.

See slide presentation below

Ms. Krone requested the current status of activities at City of Goodyear (COG) 3 well and expressed confusion regarding the proposed carbon filter solution. Ms. Koehne confirmed the hit at monitoring well (MW) 10A which registered at 21 parts per billion (ppb), but is now at 8.3 ppb. Ms. Koehne went on to say that monthly sampling of COG 3 will move to a bi-weekly rotation. Reports of these samples will be available to EPA and other interested parties within two weeks of the results. In addition, Ms. Koehne stated that the City of Goodyear is conducting its own research and will be submitting a technical memorandum in the near future. Ms. Amos asked which monitoring well reported the hit. Ms. Koenhe referenced a map that identified a well in Subunit A that was not down gradient to COG 3. She then reiterated that Subunit C has remained clean in that area. Ms. Amos inquired if the extraction wells are in Subunit A and C. Ms. Koehne confirmed Ms. Amos' inquiry and added that they will be installing an additional Subunit C well in two weeks. Ms. Krone requested better legible maps and that drinking wells be highlighted on every map presented to the CAG. Ms. Krone then expressed the public's concern for losing another drinking well due to, in her opinion, negligence by the responsible party. Ms. Koehne acknowledged Ms. Krone's concerns and stated that Crane Co. also does not want to see another drinking water well become compromised. Ms. Koehne also stated that Crane Co. is standing by the plan developed by EPA, ADEQ, and the City of Goodyear in 2008 for remediation.

Mr. Ellis asked if contamination is still moving to the northeast. Ms. Koehne replied that the boundary has remained relatively stable and wells MW-45A and MW-39A have remained non-detect. Mr. Ellis requested clarification of the term "relatively stable." Ms. Koehne explained that minor fluctuations are normal and the boundary has stayed in the same general area throughout the different pumping seasons. Mr. Ellis then requested that Ms. Koenhe comment on the reported hit at Roosevelt Irrigation District (RID) and Dysart Road. Ms. Koehne stated that Suncore-26A did detect trichloroethylene (TCE) in November, however, video of the well and several rounds of passive diffusion bag (PDB) sampling all came back non-detect. Ms. Krone recalled other hotspots mentioned in northern Subunit C and prompted Ms. Koehne to comment on those wells. Ms. Koehne explained that the 34B well is not sampled in Subunit C and is currently under negotiation with the golf course owner to either abandon the well or modify it. She went on to say that 26A was also sampled in Subunit A and those samples have come back non-detect as well. Ms. Krone asked Ms. Koehne to confirm that the wells were in

Subunit A and not Subunit C. Ms. Keohne confirmed the statement and clarified that the well is screened in Subunit A through the middle alluvial unit (MAU). Mr. Ellis asked what is being done to the well on the north side of Thomas Road, west of the college. Ms. Koehne replied that they placed a packer in Suncore-27C well in the beginning of December and that continued monthly monitoring on that well occurs. Ms. Amos asked if that well is only for sampling and Ms. Koehne confirmed that it was.

4. Discussion of PGA-North activities - Leanne Austrins, CH2M Hill

Ms. Austrins discussed present and future infrastructure projects, COG 3 history and current activities, as well as source area history and its characteristics.

See slide presentation below

Mr. Ellis inquired about the location and status of well 34B located on the golf course within the Palm Valley neighborhood. Ms. Austrins responded that it remains a conduit well with stout concentrations that are downward gradient. Ms. Amos asked if closing the two conduit wells would be beneficial or are they still being used for analysis. Ms. Austrins stated that there are no current plans for SunCor-26A however EPA is negotiating with a 3rd party for control of 34B. Ms. Amos then asked if EPA has the authoritative hammer to gain 3rd party cooperation. Ms. Brown stated that EPA must negotiate through Crane Co. who has been in ongoing negotiations with the new property owner. Ms. Austrins added that SunCor sold the property to Gold and Buffalo who now own the water rights to the well. Mr. Ellis expressed concern for the well which is located in the middle of the plume. Ms. Brown stated that EPA has intentions of closing the well once they gain approval from Gold and Buffalo. Mr. Ellis questioned whether something of a temporary nature can be done to prevent further contamination. Ms. Brown explained that no actions can be taken without an access agreement from the property owner. Ms. Brown assured Mr. Ellis that Crane Co. is monitoring Subunit C to ensure that contamination does not reach the drinking water wells. Ms. Kagan requested confirmation that the well has not been used in the last 10 years. Ms. Austrins confirmed. Ms. Krone reaffirmed that Crane Co. has a mandate to seal all conduit wells. Ms. Austrins responded that it does under the consent decree. Ms. Krone asked if EPA feels they are proceeding under that plan. Ms. Austrins responded that as long as they are in active negotiations they are fulfilling their role. Ms. Koehne then explained that Crane Co. must receive the land owner's signature in order to modify or abandon a well. Ms. Austrins reported that two plans are currently under consideration: either the well will be abandoned or it will be modified to separate Subunit A from Subunit C. Mr. Ellis asked if EPA is applying the necessary pressure on Crane Co. to execute the plans. Ms. Brown stated that she will work with the attorneys to see what can be done beyond the order to Crane Co. with the new property owner.

Ms. Austrins continued her presentation and discussed the status of COG 3. Ms. Amos asked for the location of COG 3. Ms. Krone stated it is on La Canada between Litchfield Road and Central Avenue, across from the Lattie Coor Elementary School. Ms. Amos asked if Goodyear has considered shutting down COG 3 and drilling a new well. Ms. Brown reported that the city is conducting a review and is considering all technical options. Ms. Coronado added that the City of Goodyear has done an extensive evaluation and will be holding meetings to determine what the appropriate action should be.

Ms. Krone questioned whether pressured movement could push the contamination outward. Ms. Austrins explained that there should be an increase in mass in the extraction wells from the source area. Mr. Ellis asked what percentage of the problem this treatment will address. Ms.

Austrins stated they cannot determine the percentage because the amount of mass is unknown, but iron has the potential to destruct 100% of TCE if it's applied in the right location and the right amount. Ms. Kagan asked if the treatment has been used elsewhere and if it was successful. Ms. Austrins replied that yes this treatment has been done at other Superfund sites, but it has not been applied at these depths. Ms. Brown added that all work will be peer reviewed and EPA's research and development team and will approve all methodology before applying it on a large-scale. Ms. Austrins reported that they intend to administer additional pilot tests in the target zone and spot treat areas outside of the extraction well network.

5. U.S. EPA presentation-Catherine Brown, U.S. EPA Remedial Project Manager
Ms. Brown briefly discussed the Five-Year Review process and gave an update on the progress to the CAG. She stated her intentions of hearing from all interested parties and notified the CAG that an open house is scheduled for the fall. Ms. Kagan asked if Ms. Brown will be interviewing all CAG members. Ms. Brown responded that any interested members will be interviewed.

6. Update on Western Avenue WQARF Site Activities-André Chiaradia, ADEQ Project Manager
Mr. Chiaradia reported that current activities are focusing on groundwater flow on Western Avenue. Additionally, Mr. Chiaradia reported that funding for the Site was approved for the next fiscal year.

7. City of Goodyear (COG) report and Brownfields Redevelopment Project update- David Iwanaki, COG Water Department
Mr. Littell advised the CAG that Mr. Iwanksi was unfortunately unable to attend the CAG meeting. Mr. Littell reported thirteen Phase 1 environmental assessments were submitted to EPA on March 1st. In addition the Brownfields council advisory committee, the mayor and city council selected eleven properties for Phase 2, but unfortunately at 2 of these properties access was not secured. Mr. Littell also reported that 9 out of eleven have completed investigative activities. Mr. Littell estimated the report to be submitted to EPA by July 1st, which will include recommendations with at least 3 remedial sites. He stated those 3 sites are currently unknown.

8. Call to the Public
Ms. Lampshire asked about the contamination west of Bullard, between Pebble Creek, and north of the I-10. Ms. Brown stated that the area northwest of the 33A well is non-detect and helps to define the area of the 5 ppb. plume area. A member of the audience inquired of Mr. Littell whether the Goodyear Project falls under Brownsfields or is considered a supplemental/ environmental project. Mr. Littell replied the negotiations concern identifying distressed properties and their contaminants. He went on to say the next stage is to clean-up those sites or evaluate options for redevelopment, which does not fall under Browsnfields. Mr. Gu inquired about the time frame for this project. Mr. Littell reported that EPA gave an extension that ends a year from this fall. Ms. Moore asked if the video logs are available for public viewing. Ms. Brown responded they are part of the Superfund record for the site and Mr. Littell added the COG 3 well logs are public property and copies should be available for viewing. Ms. Cooper stated she can be contacted for copies of the video logs. Mr. Fesko inquired about the health effects of nano-iron transport. Ms. Austrins responded that EPA is significantly looking into the health effects, but if they can affect an area within twenty feet of the injection point they are still a significant distance away from any potential receptors.

The CAG took a 10-minute break

9. ADEQ's roles for PGA-North, PGA-South, and Western Avenue-Harry Hendler, ADEQ Unit Manager Federal Projects

Mr. Hendler initiated an overview of ADEQ's Waste Division and Remedial Projects Unit.

See slide presentation below

Ms. Krone inquired about the environmental venture group. Mr. Hendler replied that Mr. Al Bilzi manages contracts for AMEC, ERM, and Matrix for Crane. Co.

Ms. Krone reviewed the remaining items on the agenda, highlighted the limitation of time and opened the Group up for discussion on how to proceed with the present and future format of CAG meetings. Ms. Krone stated that she would like to have a future CAG meeting without any technical presentations to only discuss administrative items. Ms. Amos added that she felt the CAG meetings should be segregated periodically when there were a lot of administrative items on the agenda. Ms. Holland stated that she didn't think this particular full agenda was typical of CAG meetings; in addition she added that she didn't think the remaining items on the agenda would take that long to review. Ms. Kagan commented that the addition of CAG meetings could cause quorum issues. Ms. Holland stated that instead of having extra CAG meetings that extra time be allotted at future meetings to discuss and review administrative items, prior to technical presentations. Mr. Ellis stated that he didn't have a position either way. Ms. Calderon advised the CAG that she would coordinate a separate meeting if the CAG decided that was what they wanted. The CAG did not vote at this time to have future separate meetings for CAG business.

Mr. Jones and Ms. Holland, proposed having the CAG members submit meeting minute corrections to Ms. Calderon prior to the CAG meeting. Ms. Calderon would then implement the corrections and present a revised copy at the meeting for the CAG to vote on. This item was not voted on by the CAG.

Ms. Kagan made a motion to table agenda items eleven and twelve for the next CAG meeting and to shorten the discussion on the frequency of CAG meetings. Mr. Ellis seconded the motion, which was voted and accepted by the majority of the CAG.

Ms. Cooper advised the CAG that she could be contacted regarding TAG information or questions.

10. Discussion of monthly site reports from EPA and ADEQ-Nicole Coronado, ADEQ Project Manager

Ms. Coronado requested input from the CAG regarding the format of the monthly updates she prepares. Ms. Kagan advised Ms. Coronado that she didn't feel the update was necessary for her purposes. Ms. Krone stated that she appreciates the updates and feels that it would be beneficial to continue to receive them. Mr. Ellis and Ms. Amos agreed with Ms. Krone. Ms. Holland stated that she appreciated the summaries that Ms. Coronado provided in her reports and welcomed future updates. Ms. Krone requested a motion to continue to receive the monthly summary updates produced by ADEQ with the addition of "hot topics" added within the update. Ms. Holland made a motion and Mr. Ellis seconded. The motion was passed by the CAG.

11. Site Outreach approaches to be discussed by CAG

This item was tabled by the CAG to be discussed at the next meeting on August 5, 2010.

12. Technical Assistant Grant (TAG) discussion and vote-Diane Krone, Co-chair
This item was tabled by the CAG to be discussed at the next meeting on August 5, 2010.

13. Acceptance and/or changes to minutes of February 4, 2010
Ms. Krone wanted two conduit wells under section 4 identified in the minutes. Ms. Calderon advised that she would research the names of these conduit wells and include them in the final minutes. Ms. Krone requested a motion to accept the minutes with her well identification requests included. Ms. Holland made a motion and Ms. Kagan seconded. The minutes were approved unanimously by the CAG.

14. New CAG Co-chair discussion and vote-Felicia Calderon, ADEQ Community Involvement Coordinator
Ms. Kagan advised the CAG that she could no longer serve as the co-chair for the CAG. The CAG discussed co-chair nominations. Ms. Calderon requested a motion to elect Ms. Holland as Ms. Kagan's replacement for co-chair. Ms. Kagan made a motion and Mr. Ellis seconded. The motion passed unanimously by the CAG. Ms. Krone maintained her position as the second co-chair.

15. Future meeting and agenda items discussed
Ms. Krone requested comments from the CAG regarding consolidating presentations for PGA-North. Ms. Brown stated that the responsible parties should be represented at every meeting. Ms. Brown stated that perhaps an EPA presentation should only be every other CAG meeting. Mr. Ellis and Ms. Holland added that they felt that the parallel presentations of PGA-North by the responsible party and EPA were helpful for them. Ms. Brown suggested that presentations by the responsible parties and EPA be limited to fifteen minutes plus questions as a target time range.

Ms. Calderon requested a motion to move the CAG meeting time to 6:00 p.m. and to have CAG business at the front of the agenda. Mr. Ellis made a motion and Ms. Holland seconded. The motion was passed unanimously by the CAG. Ms. Kagan suggested in the interest of time that background site historical information be presented at future meetings only when there is an upcoming site tour scheduled. Ms. Calderon added that there was an interested community member from Avondale who wanted to be considered for CAG membership at the next meeting.

The next meeting was scheduled for Thursday, August 5, 2010 at the Goodyear City Hall, Room 117, 190 N. Litchfield, Goodyear, AZ. Suggested agenda topics for the next CAG meeting included: updates on PGA North, PGA South, and Western Avenue activities, Brownfields Supplemental Environmental Project update, site outreach approaches to be discussed by CAG, Technical Assistant Grant (TAG) discussion and vote.

16. Adjournment Ms. Krone adjourned the meeting.

Phoenix Goodyear Airport-South Project Site Status Report

Community Advisory Group

Meeting May 6, 2010

GOODYEAR

Agenda

- Review Current Activities
- Update Status of Ongoing Cleanup
- Upcoming Activities

Review of Current Activities

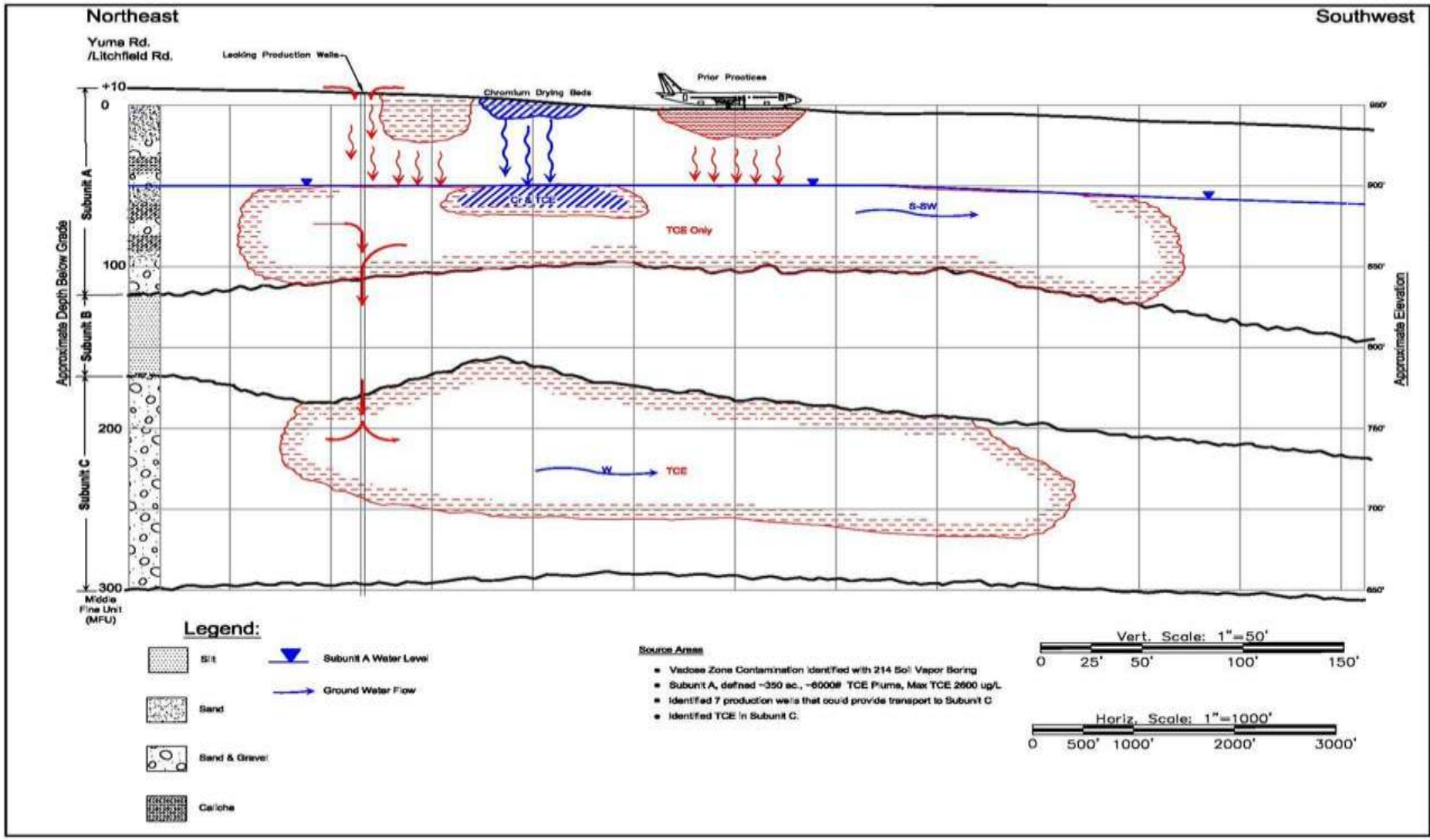
- USEPA 2010 Five Year Review
- Southern Subunit C Monitoring
- GAC – 04 Sampling and Investigation Status

USEPA 2010 Five Year Review

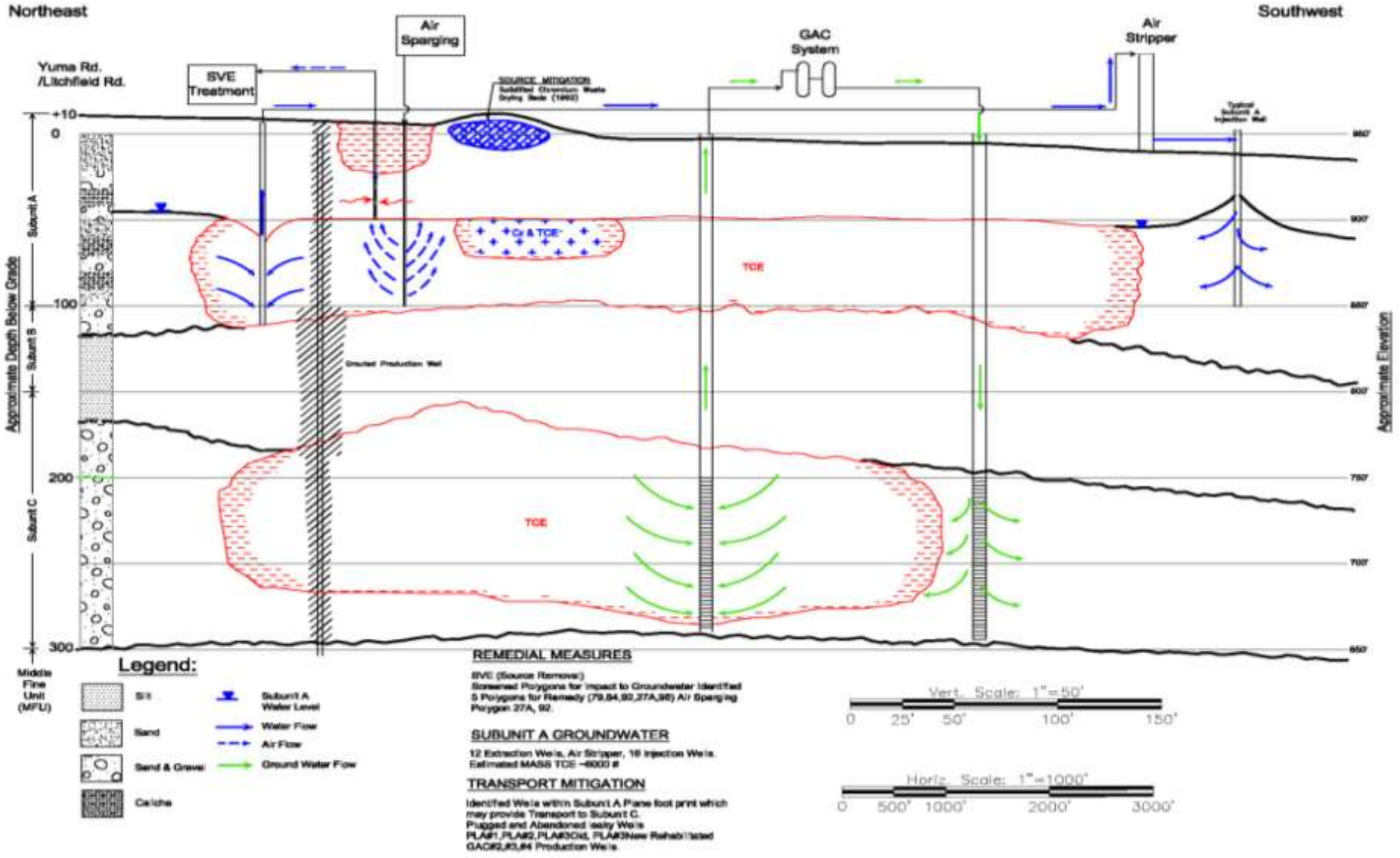
- Purpose is to ensure the site is safe and the cleanup continues to protect human health and the environment
- USEPA/ADEQ review site information,
- Assesses protectiveness of the remedy,
- Evaluates any changes in surrounding land use,
- Conducts field inspections,
- Interviews the local community and other stakeholders

GOODYEAR

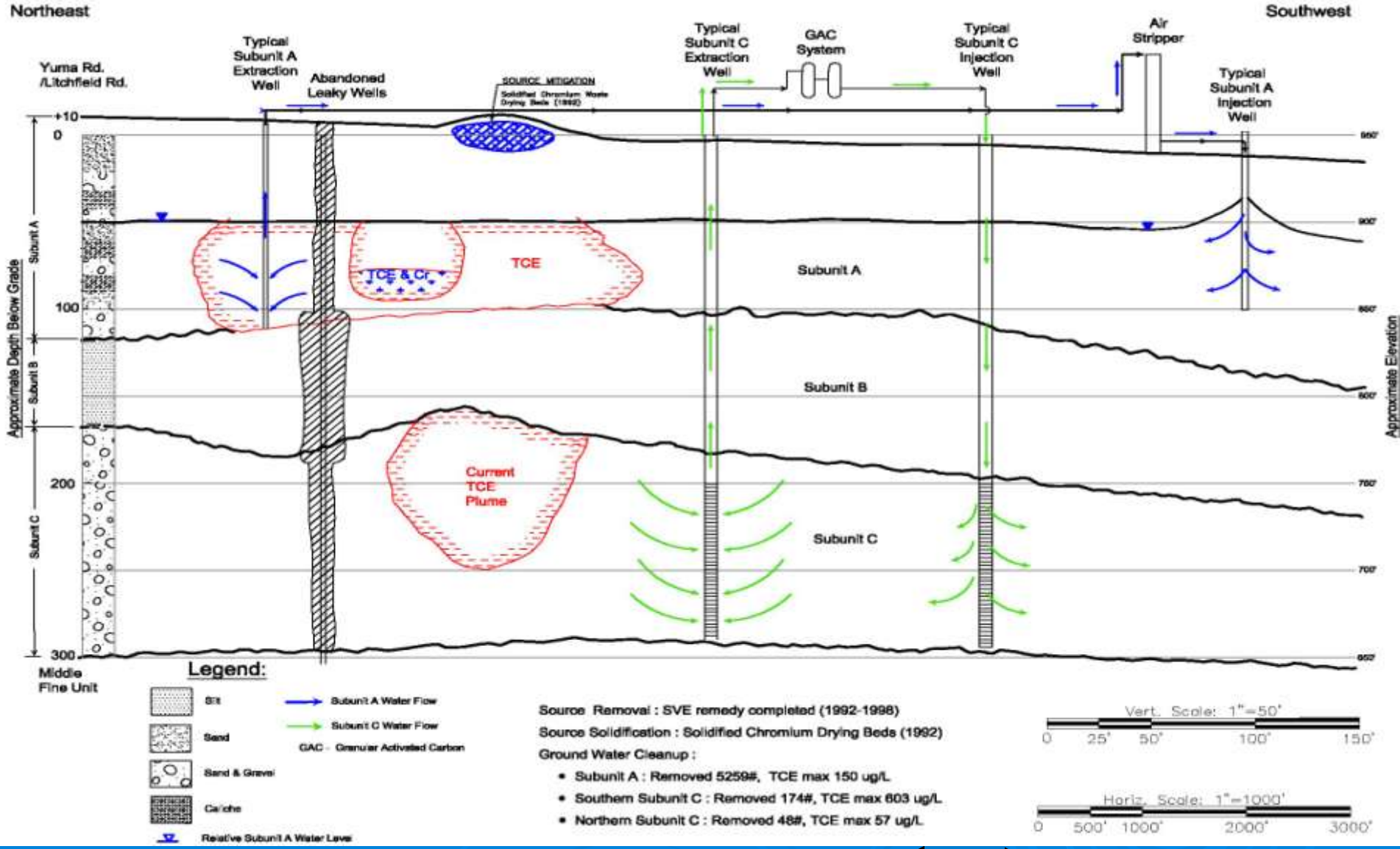
PGA South Conceptual Site Model Pre-remedial Conditions



PGA South Conceptual Site Model 1992 Conditions



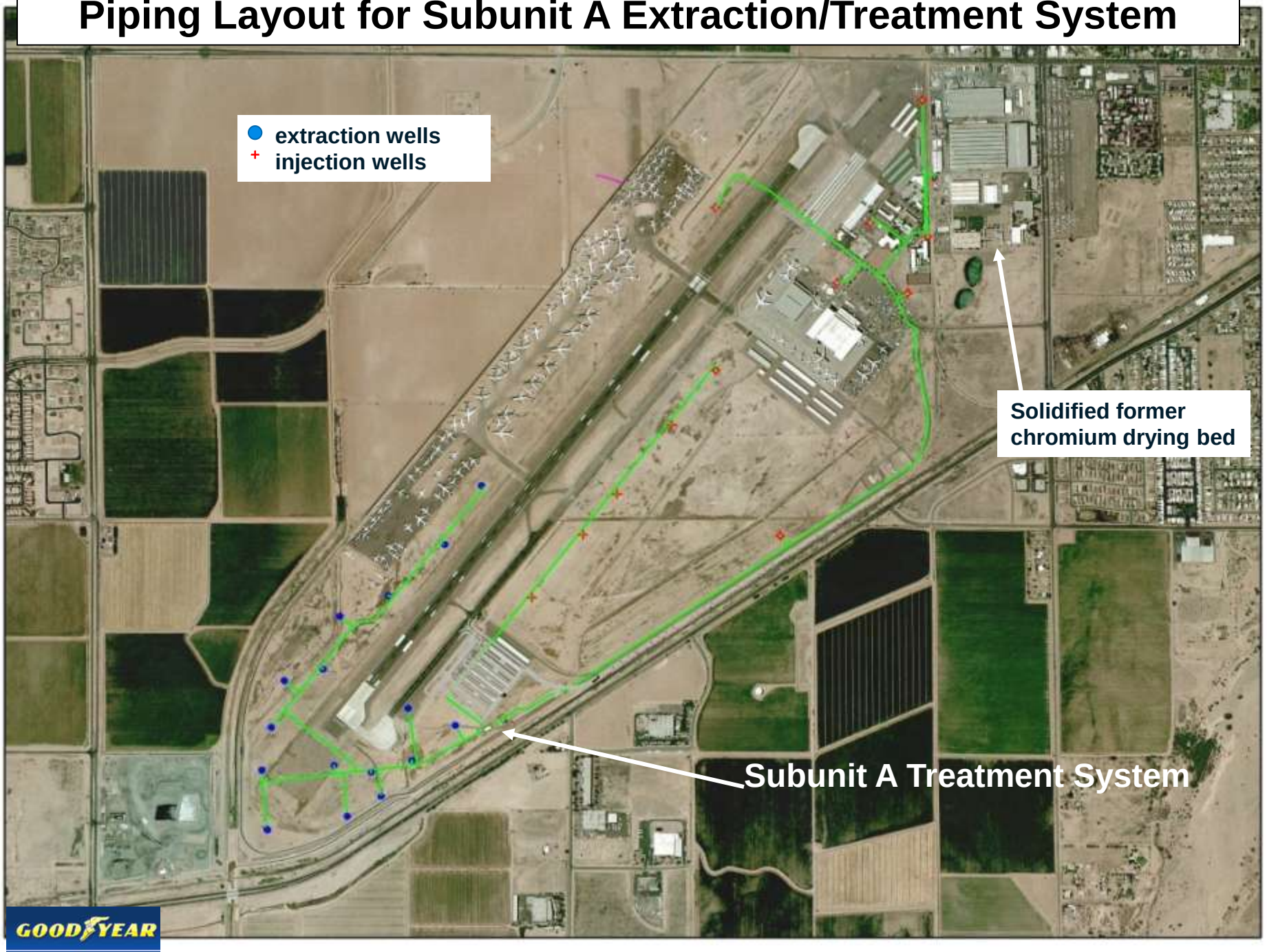
PGA South Conceptual Site Model 2010 Conditions



PGA-South Remediation System Site Inspection

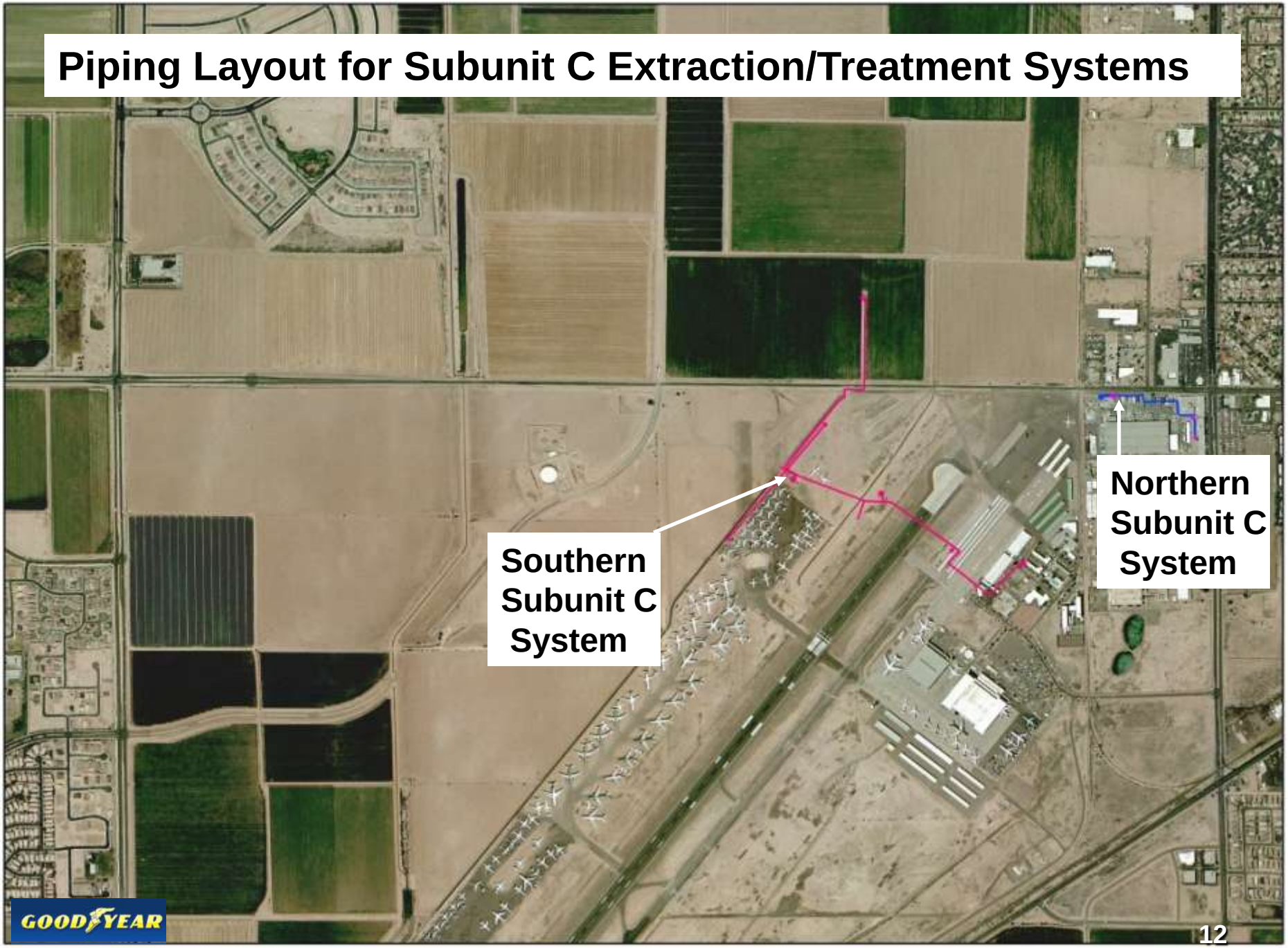
- USEPA and ADEQ conducted an inspection of the Subunit A and Subunit C groundwater extraction and treatment systems on May 6th
- The agencies also conducted interviews with Goodyear Tire and contractors

Piping Layout for Subunit A Extraction/Treatment System



Subunit A Air Stripper System

Piping Layout for Subunit C Extraction/Treatment Systems

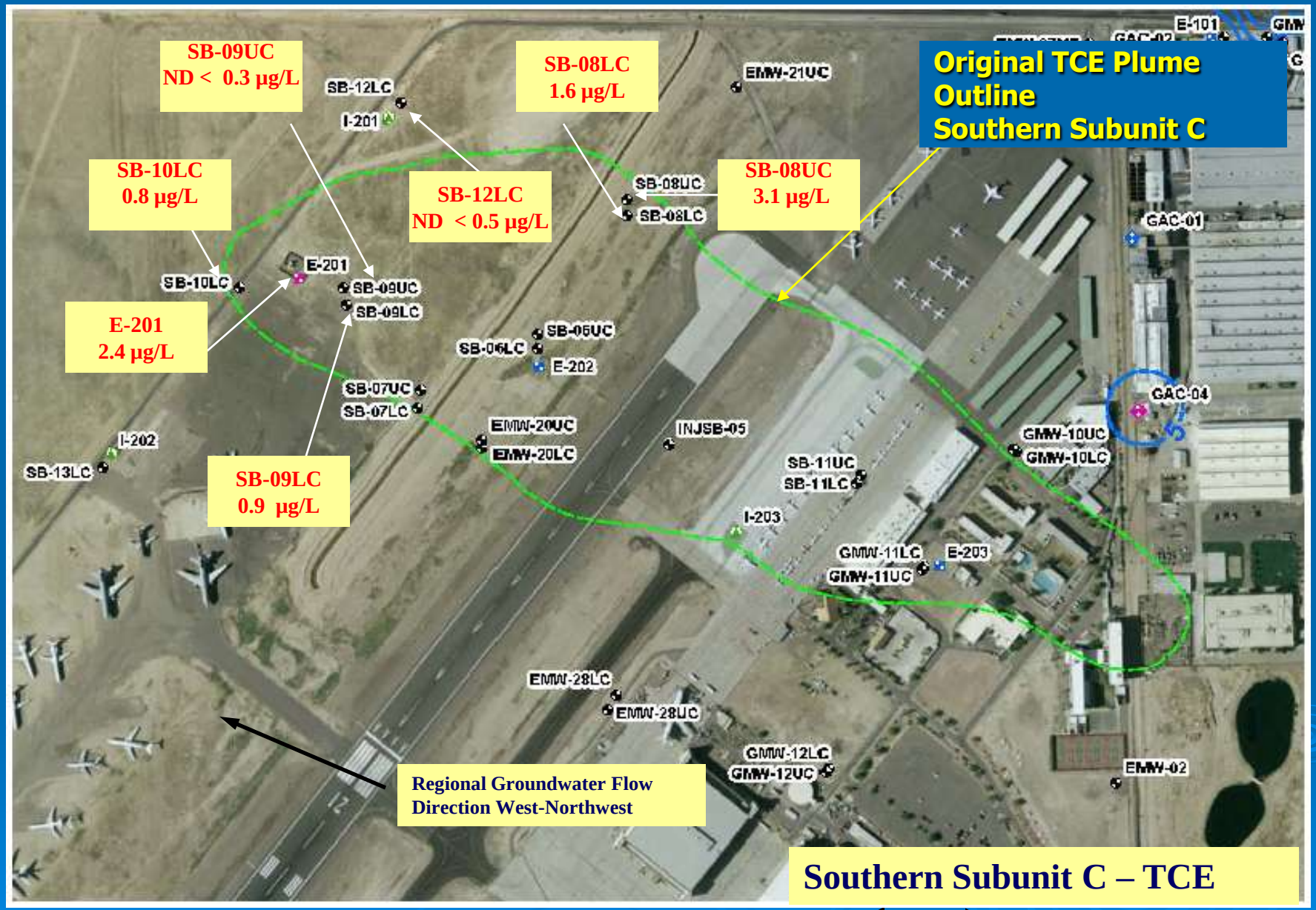


Subunit C System

Southern Subunit C Pulse Pumping Update

- Southern Subunit C TCE plume originally covered 60 acres
- ADEQ/EPA approved shutdown of the last active extraction well (E-201) in Sept 2009
- Monitoring wells are being sampled for one year (through August 2010) to evaluate potential rebound in TCE concentrations

GOODYEAR


SB-09UC
ND < 0.3 µg/L
SB-08LC
1.6 µg/L
Original TCE Plume
Outline
Southern Subunit C
SB-10LC
0.8 µg/L
SB-12LC
ND < 0.5 µg/L
SB-08UC
3.1 µg/L
E-201
2.4 µg/L
SB-09LC
0.9 µg/L
Regional Groundwater Flow
Direction West-Northwest
Southern Subunit C – TCE
SB-12LC
I-201
EMW-21UC
SB-08UC
SB-08LC
GAC-01
E-201
SB-10LC
SB-09UC
SB-09LC
SB-06UC
SB-06LC
E-202
SB-07UC
SB-07LC
GAC-04
I-202
SB-13LC
EMW-20UC
EMW-20LC
INJSB-05
GMW-10UC
GMW-10LC
SB-11UC
SB-11LC
I-203
GMW-11LC
GMW-11UC
E-203
EMW-28LC
EMW-28UC
GMW-12LC
GMW-12UC
EMW-02
E-101

GAC-04 Update

GAC-04 Sampling Results and Investigation

- Continued operation of GAC-04 and monthly sampling
- TCE results from last 6 months < 5 µg/L
- Rebound test initiated in April
- Monitoring well installation tentatively planned for June 2010

GOODYEAR

Status of Ongoing Cleanup

Subunit A Aquifer

- Peak TCE concentrations in monitoring wells have declined from 2,600 µg/L in 1990 to 120 µg/L in Feb 2010
- Treatment System Uptime during Q1 was 100%

Subunit C Aquifer

- Peak TCE concentrations in Northern Subunit C monitoring wells have declined from 180 µg/L in 1990 to 83 µg/L in Feb 2010 - Treatment System Uptime during Q1 was 99%
- The Southern Subunit C extraction system was shut off in Sept 2009 and will be monitored for 1 year to evaluate TCE concentrations

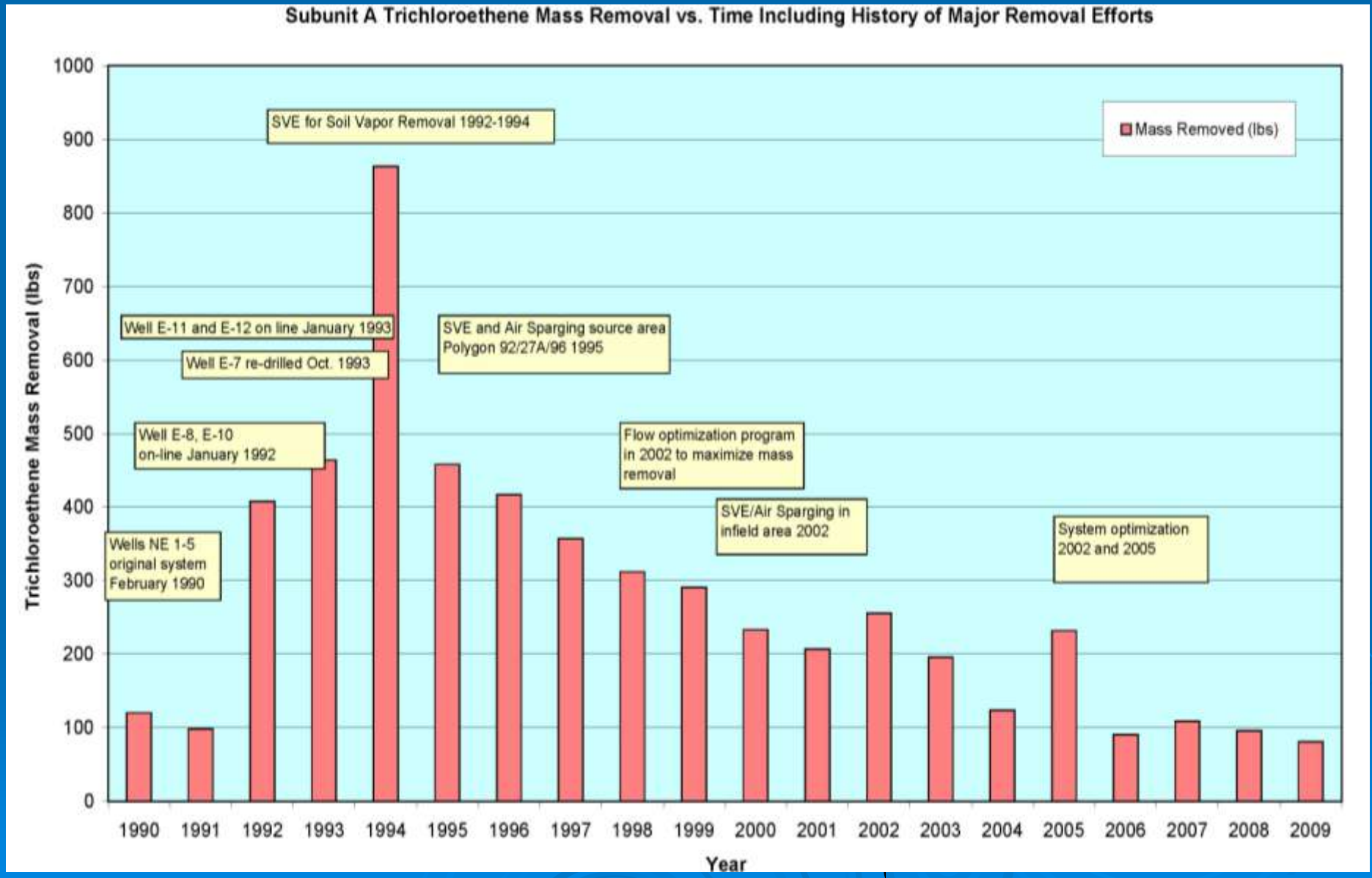
GOODYEAR

Groundwater TCE Cleanup Progress

Subunit	Max TCE (µg/L) 1990	Max TCE (µg/L) Feb 2010	Volume Pumped (Mgal)	TCE removed (Lbs)
Subunit A	2,600	120 (E-12)	5,083	5,432
Southern Subunit C	150	12 (INJSB-05)	1,826	171
Northern Subunit C	180	83 (GMW-13UC)	2,036	59
		TOTAL	**8,945**	**5,662**

GOODYEAR

Subunit A TCE Mass Removal vs. Time



GOODYEAR

Upcoming Activities

- Quarterly Groundwater Sampling Event Began May 3rd
- GAC-4 Monitoring Well Installation
- Injection Well/Extraction Well Workover (maintenance)

GOODYEAR

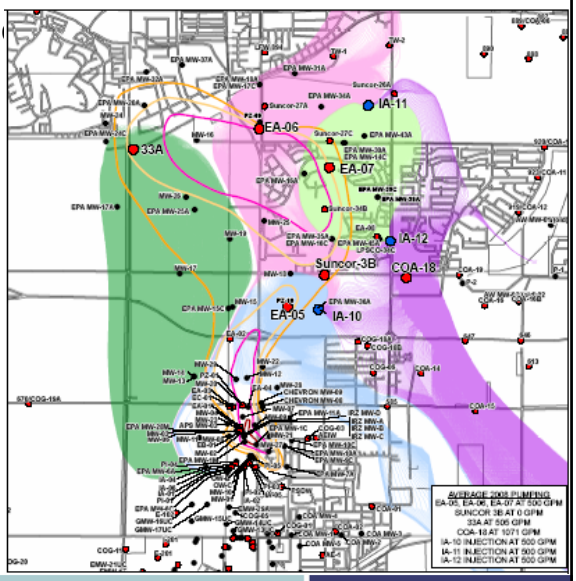

Zero Non-Compliance
Zero Waste-To-Landfill
Global Social Responsibility
Zero Solvents
GOODYEAR

Phoenix-Goodyear Airport-North (PGA-North) Superfund Site

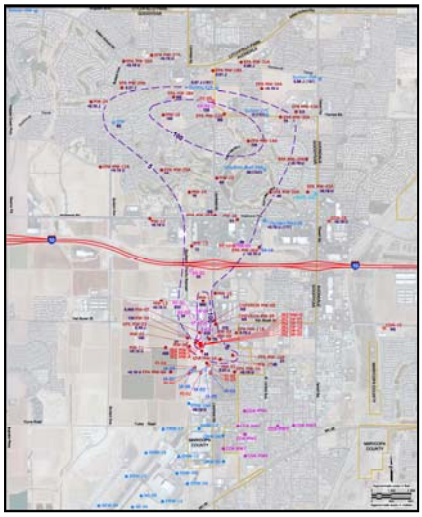
Stephanie Koehne
AMEC Geomatrix, Inc., Scottsdale, AZ

Update for PGA-North

- The Groundwater Plum
- Groundwater Investigation
- Existing Treatment Systems
- On-Site Revegetation
- Northeast Regional Treatment of Groundwater



The Groundwater Plume
First Quarter 2010

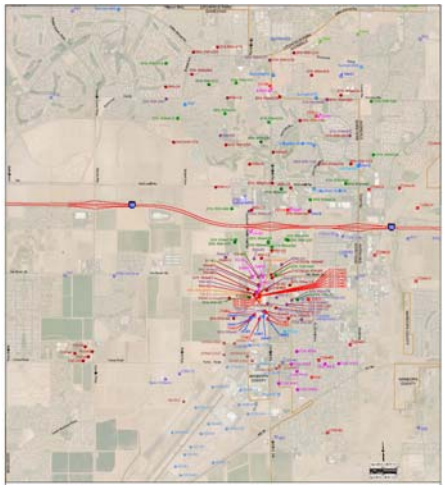


Subunit A Aquifer TCE Plume

Subunit C Aquifer TCE Plume

Groundwater Investigation

- Total Number of Groundwater Monitoring Locations to Date
  - 70 monitoring wells
  - 14 production wells
  - 10 remediation extraction wells
  - 1 golf course lake and waterfall



Year One Wells

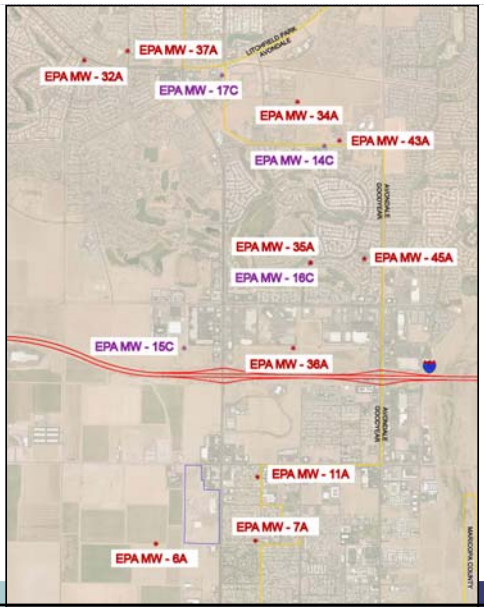
Year One of the Groundwater Investigation (Feb. 06 – Oct. 07)

15 Monitor Wells installed

Year Two Wells

Year Two of the Groundwater Investigation (Oct. 07 - April 09)

11 Monitor Wells installed

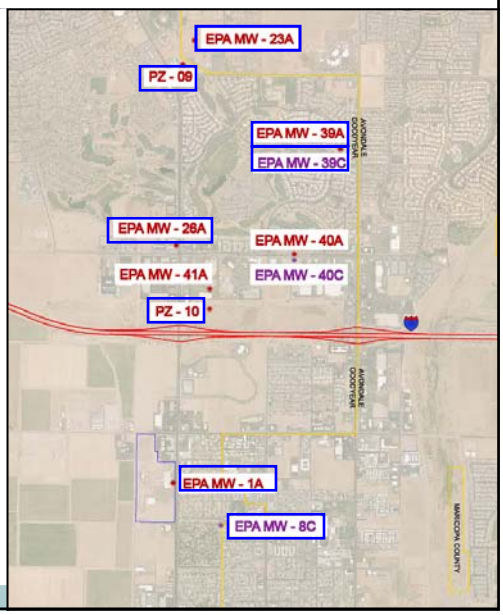


Year Three Wells

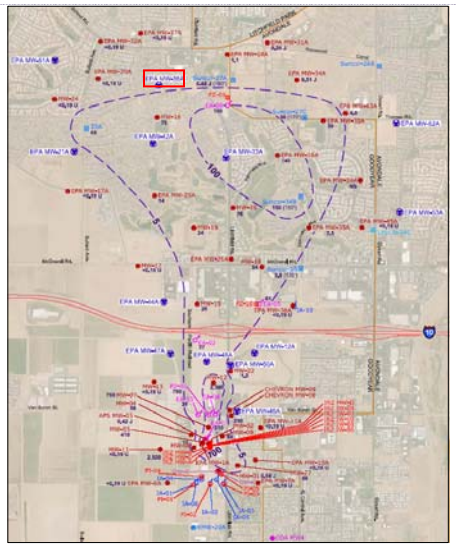
Year Three of the Groundwater Investigation

11 Monitor Wells Anticipated

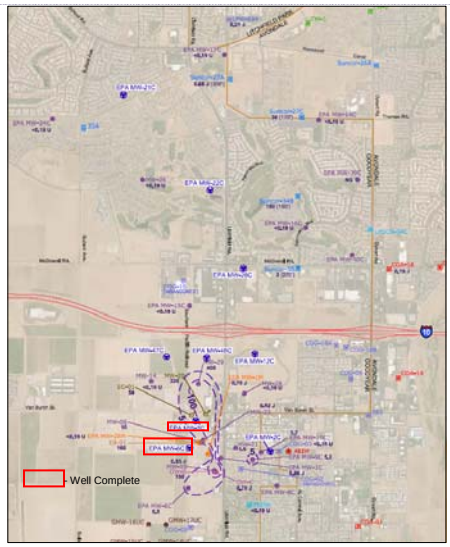
- Well completed



Remaining Monitor Wells (≥ 22 Additional Wells in 2 Years)



13 Subunit A Wells



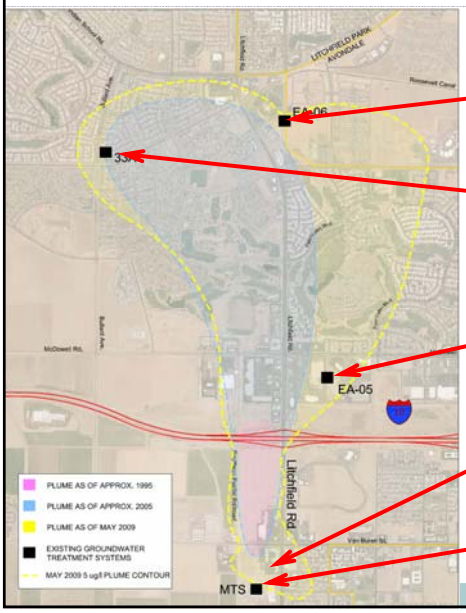
9 Subunit C Wells

City of Goodyear Well – COG-03

- The COG-03 screen interval is **entirely** in Subunit C from 235 – 285 feet
- Revised Final Wellhead Treatment/Alternative Water Supply Plan for COG Well COG-03 Work Plan – July 18, 2008
- Following this work, the next actions are to be taken only if the concentrations in Well COG-03 reach 3.0 ug/L;
  - 20-45 Days – procure and install LGAC vessels and make piping and electrical connections,
  - 21 Days – COG, MCESD and ADEA final approval and commissioning of the system,
  - 14 Days – COG inspections and approval,
- Following this work, the next actions are to be taken only if the concentrations in Well COG-03 reach 5.0 ug/L;
  - Initiate treatment with LGAC.

O&M of Groundwater Treatment Systems

Existing Treatment Systems



EA-06 Groundwater Treatment System

33A Groundwater Treatment System

EA-05 Groundwater Treatment System

Soil Vapor Extraction System

Main Groundwater Treatment System

2009 Treatment System Accomplishments

2009 Groundwater Volume Treated

- 1,055,000,000 gallons

2009 Mass Removal

- 987 Pounds TCE

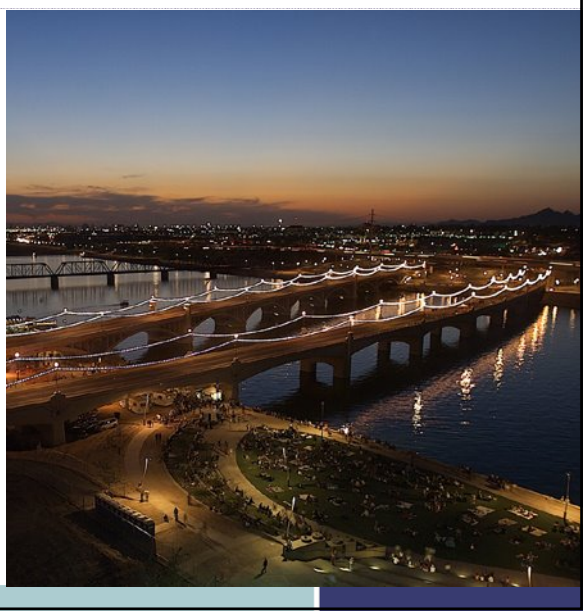
2009 Treatment Aggregate System Uptime

- 87.3% (30,618 total system hours)

2009 Accomplishments

How much is 1,000,000,000+ gallons of water ?

Enough to Fill Tempe Town Lake!

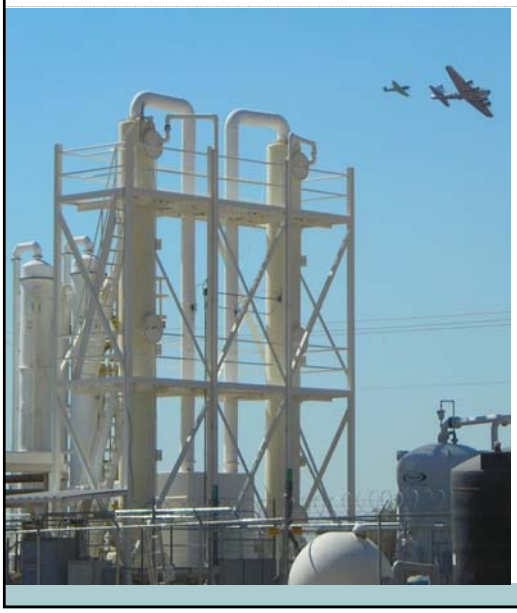


2009 Accomplishments

How much was 987 pounds of TCE when released ?

Almost 79 Gallons!

Groundwater Treatment Systems



Main Treatment System

- Built in 1994
- 7 Ext. Wells, 6 Inj. Wells
- 350 GPM
- Volume of Water Treated
  - > 2.1 billion gallons
- Mass Contaminant removed
  - ~ 28,810 pounds

Groundwater Treatment Systems

33A

- Operating Since 1997
- 1 Ext Well, clean water to RID Canal
- 570 GPM
- Volume of Water Treated
  - > 5.3 Billion Gallons
- Mass Contaminant removed
  - ~ 7,905 pounds

Groundwater Treatment Systems

EA-05

- Operating Since March 2008
- 1 Ext. Well, 1 Inj. Well
- 560 GPM
- Mass Contaminant removed
  - ~232 pounds

Groundwater Treatment Systems

EA-06

- Operating Since March 2007
- 1 Ext. Well, clean water to RID Canal
- ~550 GPM
- Mass Contaminant removed
  - ~ 523 pounds

Groundwater Treatment Systems

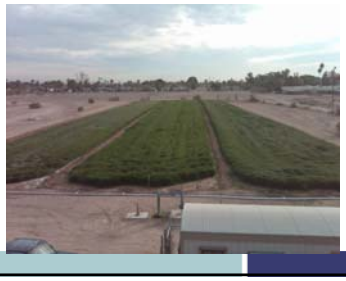
Beneficial Reuse/Recycling

MTS Water Diverted

- Dust Control Off-Site ~ 9,000 gallons
- Revegetation Demonstration - 452,000 gallons

Drum Reuse – 55 gallon poly drums for anti-scalant

- 12 drums donated to City of Goodyear

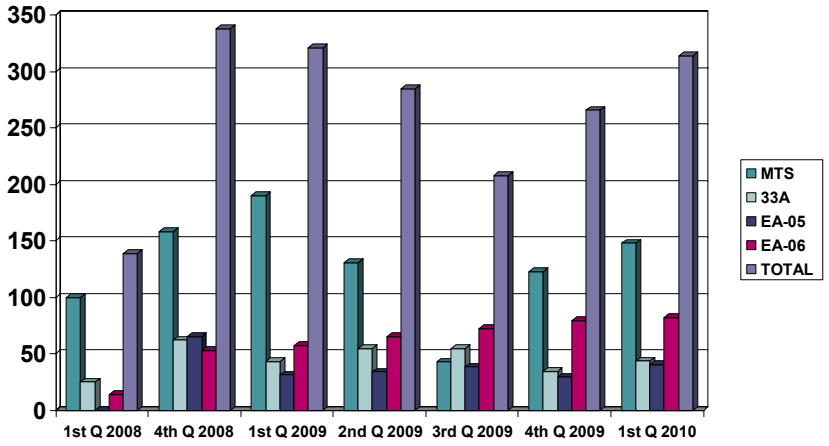


Groundwater Treatment Systems

Future/Ongoing Activities

- MTS Expansion ~25% increased capacity
- Installed All Weather Road to MTS
- Evaluation of Bag Filter Change-Out Timing
- Evaluation of Increased Flow – EA-05 (~10%)

2008/2009/2010 Mass Removal Comparison



Phased Regional Approach to Northeast Subunit A Plume

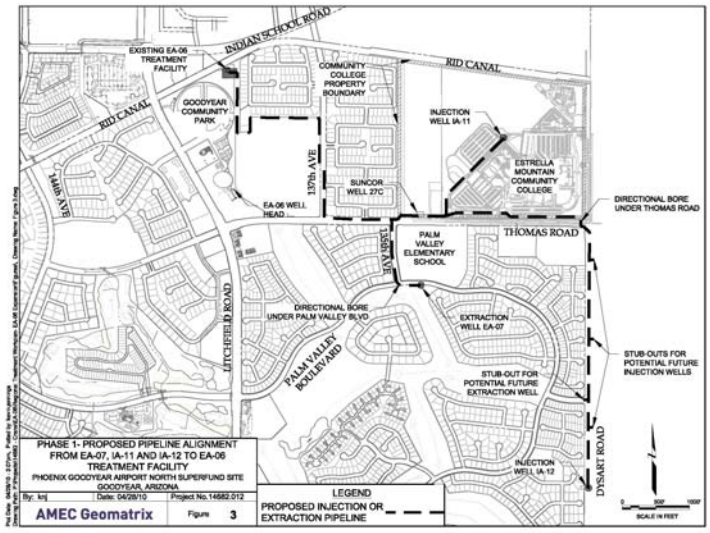
Current NE Groundwater Extraction and Injection

- Two Extraction Wells
  - EA-05 and EA-06 (~1,000 gallons total)
- One Injection Well
  - IA-10 (500 gallons total)

Proposed Future NE Groundwater Extraction and Injection

- Minimum of One New Extraction Well (EA-07)
  - Min of ~500 gallons addition GW extraction
  - Infrastructure for up 1,000 additional gallons
- Min of Two New Injection Wells (IA-11 & IA-12)
  - Up to 500 gallons each
  - Infrastructure for up to 5 injection wells

Primary Pipeline Path for EA-06 Treatment Facility Expansion



Phased Regional Approach to Northeast Subunit A Plume

Schedule of Activities

- November 2, 2009 – Started surveying and design.
- March 18, 2010 – Started Dysart Road construction.
- April 8 to 15, 2010 – Installation of Injection Well IA-11 (less vault, electrical, and controls).
- April 12 to 16, 2010 – Installation of Injection Well IA-12 (less vault, electrical, and controls).
- May 7 to 20, 2010 – 137th Avenue Pipe Installation.
- May 24 to June 4, 2010 – Thomas Road Pipe Installation.
- May 24 to June 11, 2010 – EMCC Pipe Install along Thomas.
- May 31 to June 30, 2010 – Installation of EA-07.

Phased Regional Approach to Northeast Subunit A Plume

Schedule of Activities

- June 3, 2010 – Need COG Permit for 135th Avenue.
- June 7 to 25, 2010 –
  - 135th Avenue Pipe Installation.
  - St. Thomas Aquinas Pipe Installation.
- June 28 to July 9, 2010 – Goodyear Park Pipe Installation.
- July 12 to 16, 2010 – Treatment Facility Piping Tie-In.
- **July 19, 2010 – Anticipated System Expansion Startup.**

Phased Regional Approach to Northeast Subunit A Plume

Conveyance Piping Installation – Asphalt

Phased Regional Approach to Northeast Subunit A Plume

Conveyance Piping Installation – Valve





Phased Regional Approach to Northeast Subunit A Plume

Conveyance Piping Installation – Slurry Operations

Phased Regional Approach to Northeast Subunit A Plume

Conveyance Piping Installation – Asphalt Paving

Phased Regional Approach to Northeast Subunit A Plume

Conveyance Piping Installation – Asphalt Paving

Phased Regional Approach to Northeast Subunit A Plume

IA-11 Injection Well Installation

Phased Regional Approach to Northeast Subunit A Plume

IA-12 Injection Well Installation

Questions?

Phoenix Goodyear Airport Superfund Site
COG-03 and Source Area Treatment

Presented to the Community Advisory Group (CAG):

May 6, 2010

Goodyear, AZ

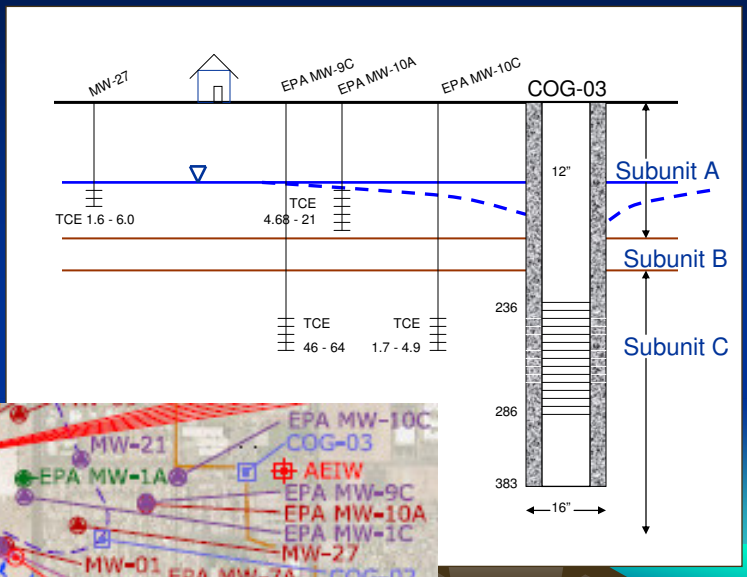
COG-03 History

- Originally Drilled January 20, 1959
- original purpose – irrigation well
- total depth – 375 feet below ground surface (bgs)
- well diameter – 16 inches
- screen interval – 236-250 ft bgs and 254-260 feet bgs
- changed to municipal water supply well 1985
- screen interval modified 236-286 feet bgs
- 12 inch casing

COG-03 Current Status

- video log completed 2007
- inner sleeve is perforated from 236 feet bgs to 250 ft bgs
- perforations below 250 ft bgs appear plugged
- well is showing signs of age

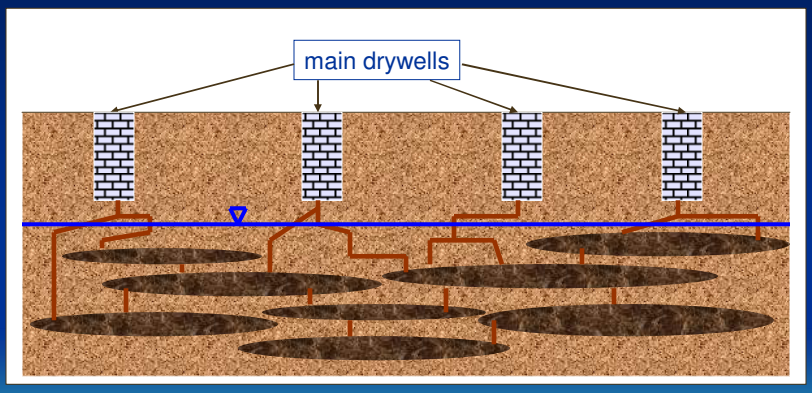
COG-03



Source Area Treatment

Main Drywells Area

PGA-N Main Drywells Source Area



nZVI – What is it and why do we need it?

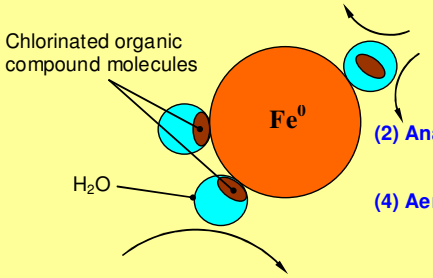
- nano scale zero valent iron (nZVI)
- zero valent iron reduces chlorinated compounds through chemical reduction to innocuous byproducts (hydrogen gas, chloride, hydroxide)
- nano size allows for application at deeper depths than micro scale iron
- extremely effective and quick method of chlorinated solvent mass reduction

nZVI Chemistry

Zero-Valent Iron Reactions

(3) Reductive dehalogenation by hydrogen gas:

$H_2 + XCl + catalyst = XH + H^+ + Cl^-$



(2) Anaerobic iron corrosion:

$Fe^0 + 3H_2O = Fe^{2+} + 3OH^- + H_2 + H^+$

(4) Aerobic iron corrosion:

$2Fe^0 + O_2 + 2H_2O = 2Fe^{2+} + 4OH^-$

(1) Direct reduction on metal surface:

$Fe^0 + H_2O + XCl = Fe^{2+} + OH^- + XH + Cl^-$

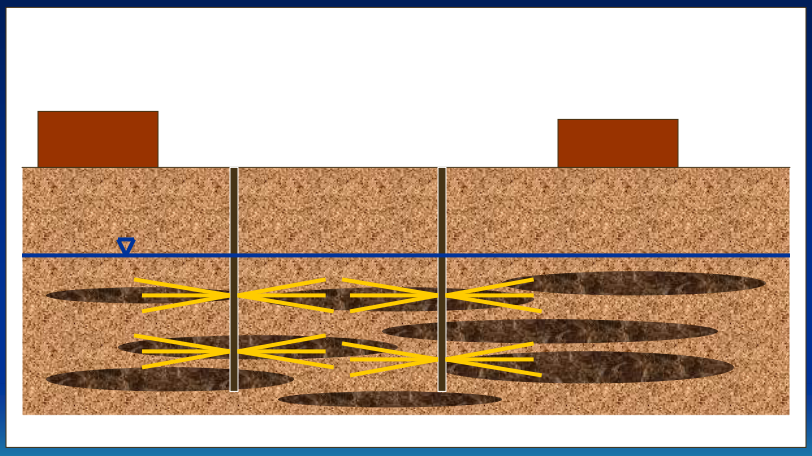
Phase III - Pilot Test

- injection under pressure
- nZVI solution 21 g/L
- nZVI preparation includes water slurry and stabilizing compound
- goal to inject 8000 gallons of nZVI solution over 4 fractures (two borings, 2 fracture depths per boring)
- result - 350 lbs nZVI per fracture
- Successfully completed February 2010

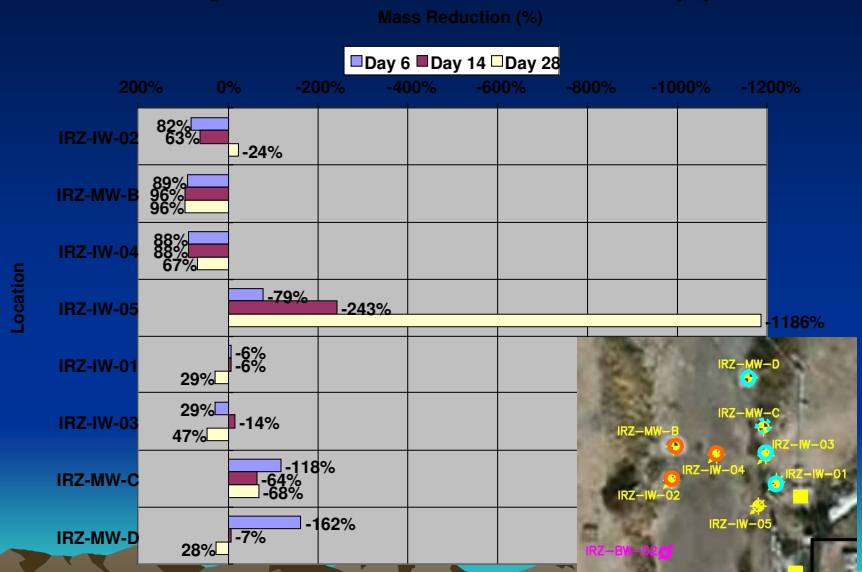
Injection Process

Video used with permission from ERM

PGA-N Source Area

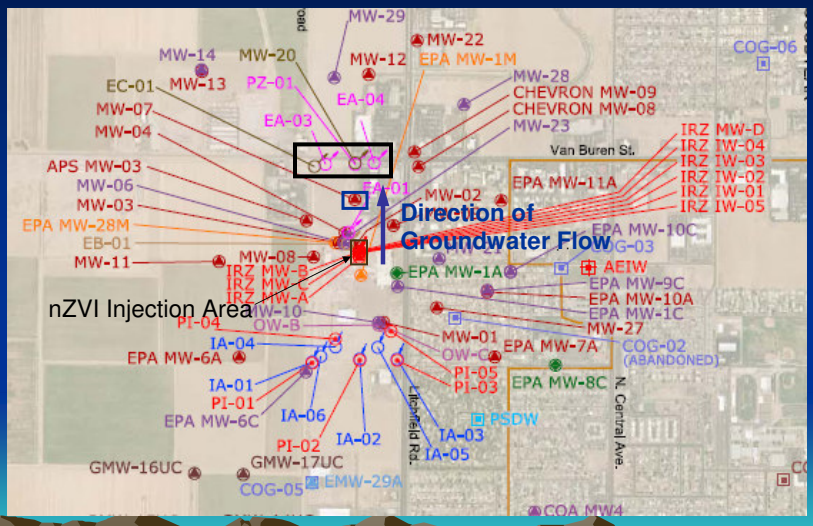


Preliminary Results from nZVI Application



Data provided by ERM

Monitor Well Network



Possible Future Application

- continue to target source zone for mass removal
- “spot treat” areas outside of the influence of the extraction system

Other Items of Note

- Stipulated Penalties in the amount of $30,000 were assessed to Crane Co. on April 2, 2010 and received on April 29, 2010 for spills at the MTS in May 2009
- EPA issued Crane a direction letter on April 23, 2010

For More Information

EPA

- Catherine Brown – EPA RPM
- Viola Cooper - Community Involvement Coordinator

ADEQ

- Felicia Calderon – Community Involvement Coordinator
- Nicole Coronado – Project Manager
  602-771-4245

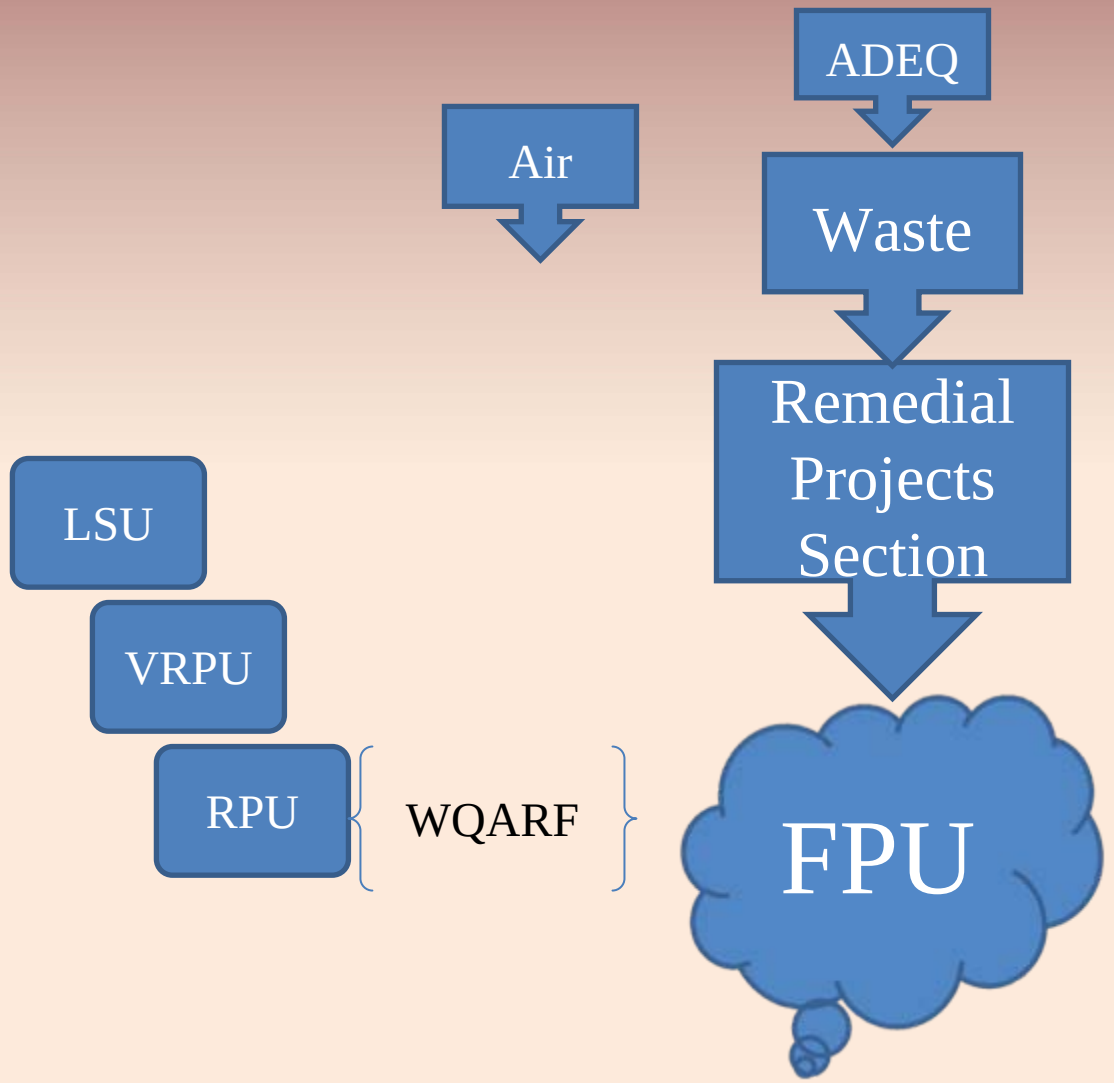
ADEQ Federal Projects Unit

PGA CAG Briefing

May 6, 2010

Harry R. Hendler

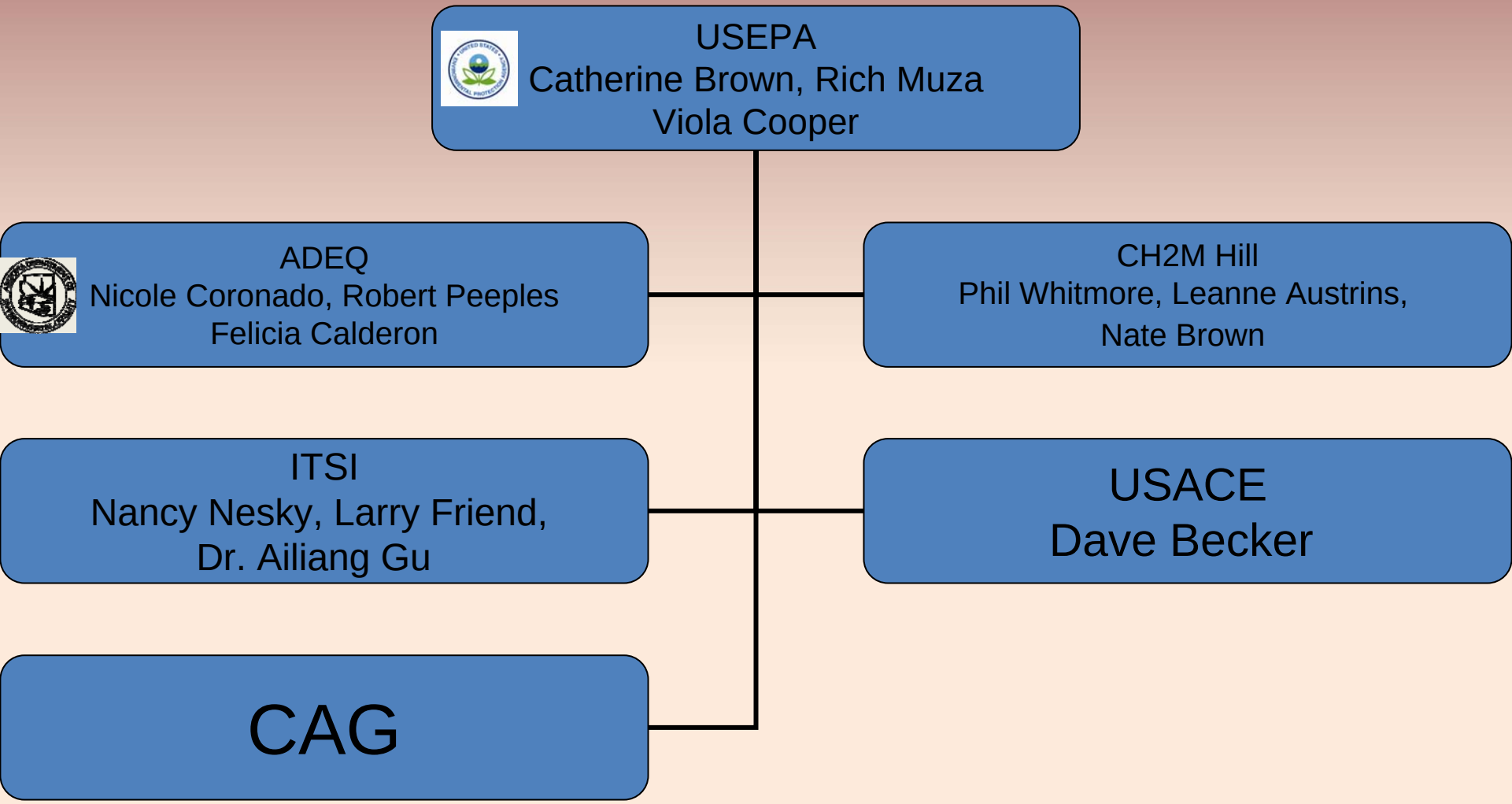
ADEQ's Basic Make Up



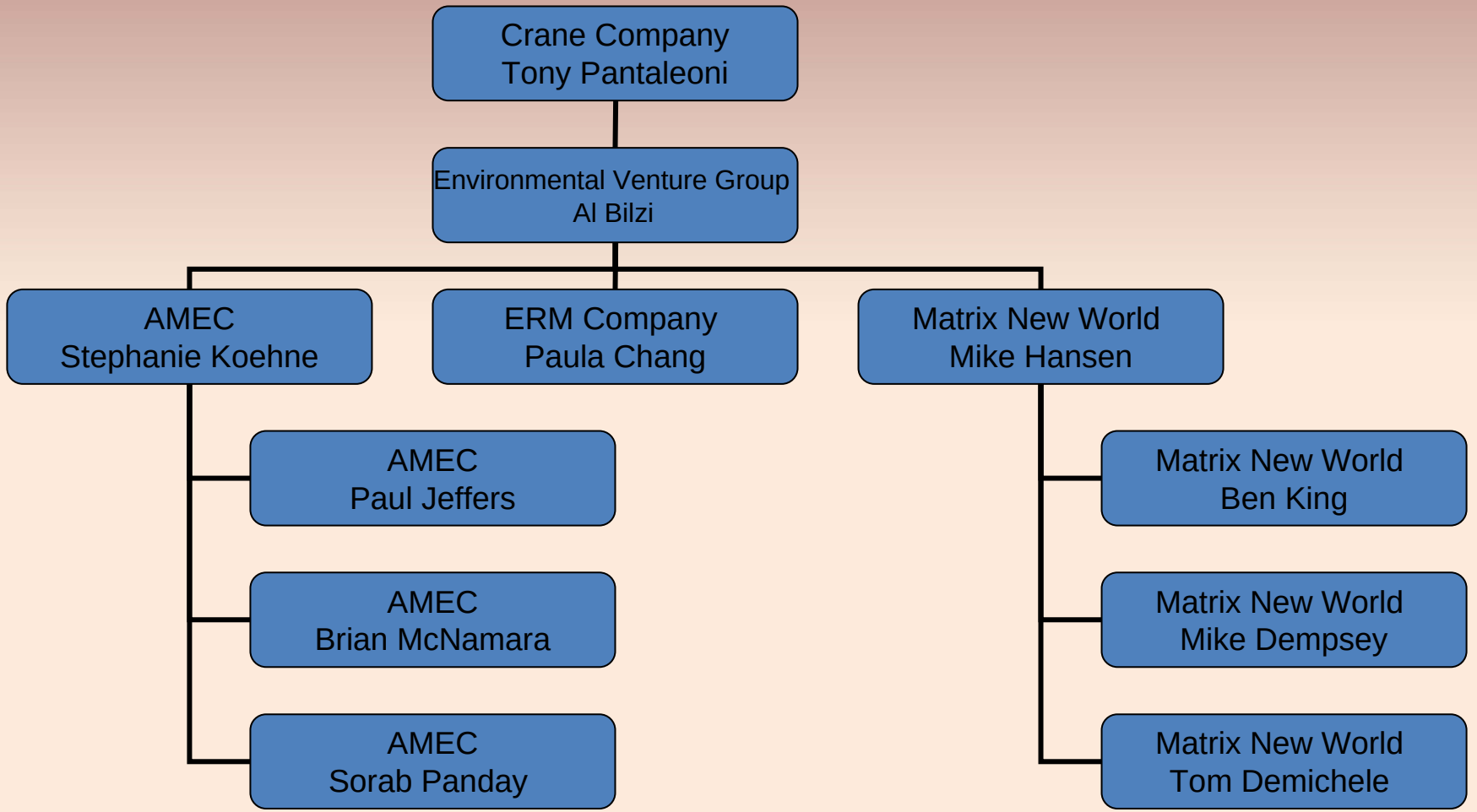
FPU's Plate

- Federal Superfund Sites
  - Funded by Air Force, Army, Army Corps of Engineers, & Navy
  - 46
- Private Superfund Sites
  - Funded by USEPA Region IX or PRPs
  - 8
  - 4 Natural Resource Damage cases
- Interact with
  - ADEQ's Air, Water, & Waste programs
  - Local & state agencies, other states & territories, USEPA HQ, Pentagon, DoJ, DoI, BLM, USFWS, & USDA

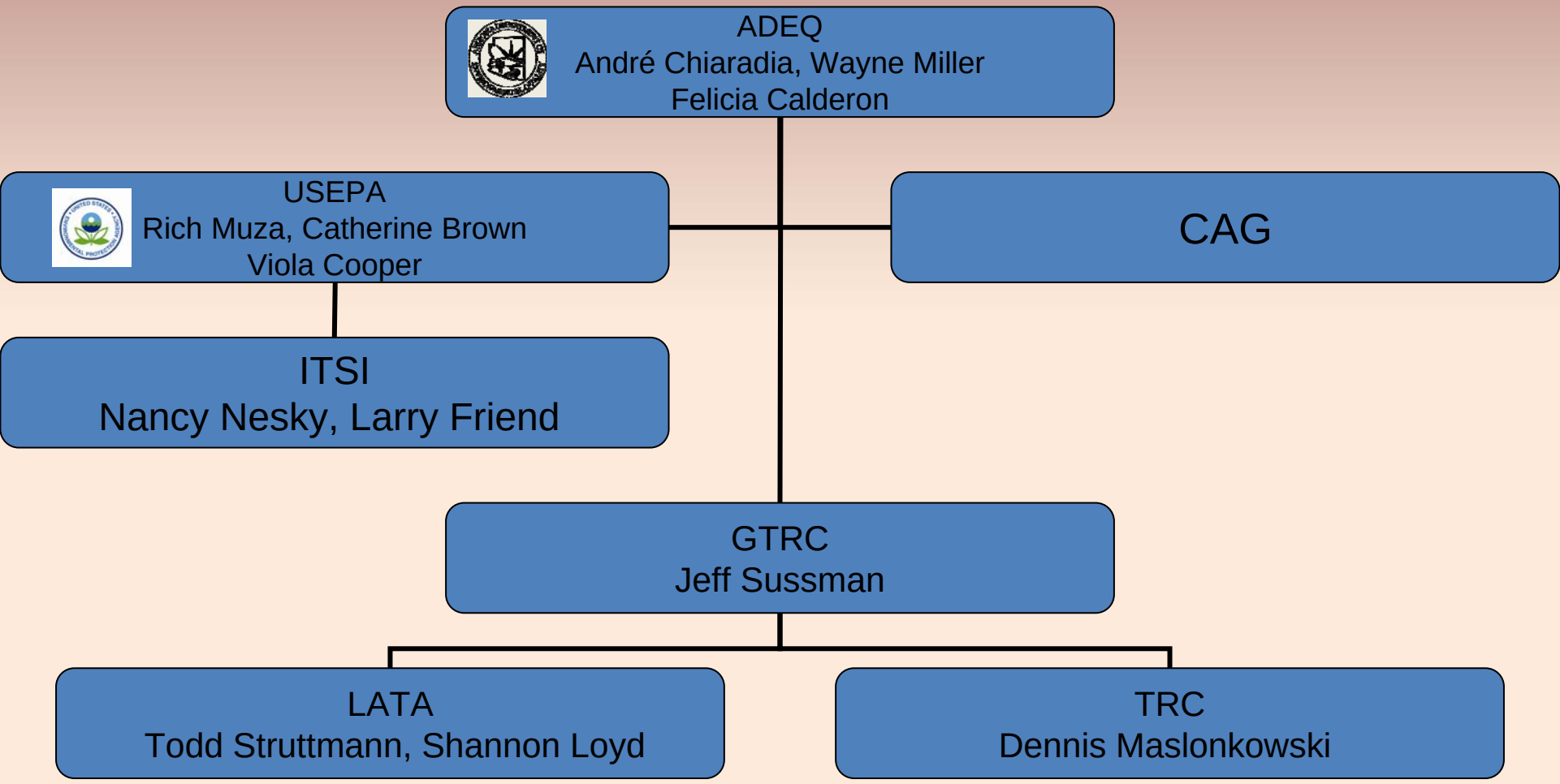
Phoenix Goodyear Airport North



Phoenix Goodyear Airport North



Phoenix Goodyear Airport South



Western Avenue (WQARF)

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