ADEQ Arizona Department of Environmental Quality

MEETING MINUTES

OU #09-098

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

Thursday, February 5, 2009 at 6:30 p.m.
Goodyear City Hall, Room 117
190 N. Litchfield Rd., Goodyear, AZ 85338

FINAL MINUTES

CAG Members in Attendance:
Susan Kagan
Diane Krone
Robert (Bob) Smith
Thomas H. Jones

ADEQ Staff in Attendance:
Nicole Coronado, PGA-South Project Manager
André Chiaradia, Western Avenue Project Manager
Felicia Calderon, Community Involvement Coordinator
Julie Riemenschneider, Remedial Projects Section Manager
Harry Hendler, Federal Projects Unit Manager
Bob Peeples, Hydrologist

EPA Staff in Attendance:
Mary Aycock, PGA-North Project Manager
Viola Cooper, Community Involvement Coordinator
Kevin Mayer, Region 9-Superfund Project Manager
Leana Rosetti, Community Involvement Coordinator

Others in Attendance:
Kirk Craig, AMEC Geomatrix
Ron Clark, Goodyear Tire & Rubber Co.
David Iwanski, City of Goodyear
Nancy Nesky, ITSI
Larry Friend, ITSI
Barney Helmick
Chad Baker, Squire Sanders & Dempsey L.L.P
Yu Min Shi
Chad Rogers
Mary Moore
Sanjay Sangani, URS
Karen Apple, City of Phoenix
Rebecca Godley, City of Phoenix
Don Sholtzly, City of Phoenix
Chrissy Menghini, BEM
Tom Suriano, Clear Creek Associates
Leanne Austrins, CH2MHILL
Phil Whitmore, CH2MHILL

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1. Call to Order / Introductions – Susan Kagan

Ms. Kagan, CAG Co-chair, facilitated the meeting. CAG members and all meeting attendees introduced themselves.

2. Update of PGA North activities – C. Kirk Craig, P.E. Senior Engineer, AMEC Geomatrix

Mr. Craig introduced himself and members of the new consulting team. Mr. Craig initiated his presentation to the CAG with a remediation review of the PGA North Site. Mr. Craig continued his presentation with details of the PGA North Site that included: history of the groundwater plume; groundwater investigation; summaries of existing groundwater treatment systems (EA-06, 33A, and EA-05); update on the progress of the soil vapor extraction system; upcoming building demolition activities to begin in March 2009 and to end this year; information on source investigations including a soil gas investigation; and data on an innovative in-place groundwater treatment for nano-scale zero valent iron (NZVI).

See slide presentation below

Ms. Krone requested further details regarding the upcoming building demolition and the issue of dust in the air and the contaminants in the dust. In response Mr. Craig stated that dust control would be done through the Maricopa County permit and that building assessments have already been conducted regarding the absence of contaminants at such a shallow level as dust. In addition, Mr. Craig stated that the suppression method of dust would be done with water trucks.

Mr. Smith inquired as to how much of the nano-scale zero valent iron had been already pumped into the ground. Mr. Craig responded that 50 lbs. was used in the first stage, but that the goal in the next phases would be to get as much of the iron as possible into the source area.

Ms. Kagan asked what the plans were after the building demolition. Ms. Aycock responded that future endeavors included revegetation with native plants and the utilization of remediated water from the main treatment system for this area and vegetation. In addition, she discussed the possible transformation of existing concrete formations into ornamental rock for a park-like space. Ms. Aycock also advised the CAG that their input would be solicited in the final redevelopment plans for this area.

Mr. Smith inquired if a general work plan was available that described the order in which buildings would be demolished. Ms. Aycock responded to Mr. Smith that a work plan had been submitted. Ms. Aycock then advised the CAG of the following building demolition scheduling priorities: first - the aluminum buildings, second - the number two buildings, and third – the number 22 buildings.

3. Update of PGA South activities – Ron Clark, Goodyear Tire & Rubber Company
Mr. Clark greeted the CAG and proceeded to review current, ongoing and projected remedial activities for PGA-South.

See slide presentation below

No questions were asked.

4. Airport expansion project for PGA South – Karen Apple and Rebecca Godley, PGA Masterplan
Ms. Apple greeted the CAG and proceeded to review PGA Site activities for PGA-South. Ms. Apple presented the following to the CAG: a project work flow chart; “unconstrained” forecast summary; recommended master plan concept; draft environmental assessment and fixed based operator schedule; proposed development options; and information on groundwater cleanup infrastructure. In addition Ms. Apple advised the CAG that during the environmental assessment beginning July of 2009, there would be public workshops and that the CAG would be invited to attend. Ms. Apple emphasized to the CAG that PGA would continue to remain a general aviation airport and that no future plans existed to turn into a commercial airport.

See slide presentation below

Mr. Jones questioned the restriction of housing within the area of this new development. In response Ms. Apple stated that they are coordinating with the City of Goodyear (City) and are discouraging residential development around the airport.

5. Update on Western Avenue (WA) WQARF Site activities, discussion and taking comments on Draft Remedial Objectives (RO) Report – André Chiaradia, ADEQ Project Manager

Mr. Chiaradia reported on a newly installed monitoring well (MW #8), well sampling results, a review of the WQARF process and the release of the Draft RO Report. Mr. Chiaradia announced that the 30-day public comment period for the Draft RO Report was open from January 30, 2009 through close of business March 2, 2009. In addition, Mr. Chiaradia relayed to the CAG that following the 30-day comment period for the proposed RO Report, ADEQ will finalize the RO Report with consideration of the comments it has received. Mr. Chiaradia then requested any comments on the Draft RO Report from the CAG and advised the meeting attendees that they could make their comments there or send them in writing to his attention. The finalized RO will become part of the final Remedial Investigation Report.

See slide presentation below

Mr. Jones inquired as to the location of the newly installed MW #8. In response Mr. Chiaradia explained it was installed on the corner of Los Robles Drive and East La Cienega Avenue in Old Goodyear. Mr. Jones also asked the depth of MW #8. Mr. Chiaradia advised that it's depth was 150 ft. Ms. Krone requested information regarding if the State fund had the financial capability to continue sampling if contamination was found in City monitoring well (COG #1), or if the well had to be shut off. Mr. Chiaradia advised that in the case of COG #1, first an investigation would be done to see if that well had been impacted. If so, there were a lot of other remediation options available besides shutting off that well; such as installing treatment at that well or putting in a new well in another location within the City. In regards to financial capabilities of the State, if such a well contamination would arise, Mr. Chiaradia stated that currently the State was still trying to interpret recent ADEQ budget cuts, but that particular obligations would not be negated. Ms. Riemenschneider, Manager of the Remedial Projects Section at ADEQ, also stated to the CAG that protecting drinking water supplies was a number one concern for ADEQ.

No comments were made on the Draft RO Report.

Mr. Chiaradia next presented to the CAG a video* that filmed the installation of MW #8 at the Western Avenue WQARF Site. Ms. Riemenschneider mentioned that this movie was created at ADEQ by Andre Chiaradia, Project Manager and Tom Summers, Graphic Information System (G.I.S.) Technician.

**The video presented at the meeting will be released once distribution methods are finalized.*

Ms. Kagan inquired how long it took to drill this well. Mr. Chiaradia replied it was about a four day process. In addition, Mr. Chiaradia stated that it was a requirement to distribute door hangers notifying the surrounding neighborhood prior to installation of any well.

6. City of Goodyear report – David Iwanski, COG Water Department

Mr. Iwanski reported that the Public Works and Water Resources Departments were consolidated into one. In addition, Mr. Iwanski reported on meetings with ADEQ, the U.S. Environmental Protection Agency (EPA) and other teams related to both PGA and WA to introduce members of the project teams and review notification sheet procedures for all stakeholders. Mr. Iwanski mentioned that a letter was written by the City dated January 15, 2009 to EPA and ADEQ regarding primacy in terms of required cleanup activities in the protection of drinking water supplies. Mr. Iwanski also advised the CAG regarding potential CAG members that the City was going to recommend to ADEQ and the CAG.

Ms. Krone inquired regarding the Brownfields Redevelopment Project and its status. Mr. Iwanski replied that the Escrow account through Wells Fargo Bank had been opened. Mr. Iwanski also stated that the consultants from Brown and Caldwell and EPA recently met to get direction on notification activities and requirements. Mr. Iwanski added that the Escrow account should be funded in the next eighteen to thirty days and that the consultants have been working with the Brownfields Citizens Committee. Mary Aycock added that she spoke with the consultants from Brown and Caldwell regarding them speaking with the CAG once a criterion for development had been established. The CAG expressed interest on having a presentation from the consultants from Brown and Caldwell. Mr. Iwanski mentioned that the National Brownfields Conference, "The Big Event," was going to be held in Goodyear on March, 24-25, 2009, and that over two thousand attendees were expected.

The CAG took a 10-minute break.

7. Perchlorate presentation – Kevin Mayer, EPA

Mr. Mayer greeted all meeting attendees and began his presentation that reviewed the scientific and regulatory areas of perchlorate from an EPA Region 9 perspective. Mr. Mayer included the following in his presentation on perchlorate: its uses; health effects; historic data; primary human exposure routes; and the future of establishing regulation policies for perchlorate in drinking water.

See slide presentation below

Mr. Smith inquired if exposure to perchlorate was cumulative, and Mr. Mayer responded that it was not; rather it flowed right through the body.

8. *Call to the Public

Public interest was expressed in obtaining copies of the perchlorate presentation made by Kevin Mayer. Ms. Calderon did advise all attendees that meeting minutes would be available on the ADEQ Web site, and that Mr. Mayer's presentation would be included in the meeting minutes on the Web along with the other presentations that evening.

9. Discussion of annual tour of PGA North, and PGA South, for CAG members – Mary Aycock, EPA Project Manager and Nicole Coronado, ADEQ Project Manager

Ms. Aycock proposed to the CAG that the annual tour take place on either April 1st or 2nd of this year to avoid warm weather conditions. In addition, Ms. Aycock indicated that she was asked by the City to invite city council members and other folks to attend this tour as well. Regarding transportation for the tour, Ms. Aycock stated that AMEC Geomatrix along with Crane Co. could arrange a touring van that would seat twenty to thirty people and possibly more to allow for communication between all tour attendees. Ms. Calderon advised the CAG members that they could respond to her at a later time to select either date proposed by Ms. Aycock.

10. Acceptance and/or changes to minutes of August 7, 2008 and November 6, 2008

A quorum was not present at the meeting so this agenda item was held until the next meeting.

11. CAG membership discussion and voting

A quorum was not present so voting was held until the next meeting. Ms. Calderon advised the CAG that it was critical that CAG business be conducted at the next meeting and that she would research resolving the CAG's quorum number before the next meeting.

12. Future meeting and agenda items discussion
The next meeting was scheduled for Thursday, May 7, 2009 at the Goodyear City Hall, room 117, 190 N. Litchfield, Goodyear, AZ. Suggested agenda topics for the next CAG meeting included: update of PGA-North activities; update of PGA-South activities; update of Western Avenue activities; Brownfields Redevelopment Project presentation and CAG membership discussion and voting.

13. Adjournment
Ms. Calderon adjourned the meeting.

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

Community Advisory Group Meeting

February 5, 2009

CRANE

Update for Phoenix–Goodyear Airport North Superfund Site (PGA-North)

- Introduction
- The Groundwater Plume
- Groundwater Investigation
- Existing Treatment Systems
- Building Demolition
- Source Investigations
- Innovative In-Place Groundwater Treatment

Primary AMEC Geomatrix PGA-North Team

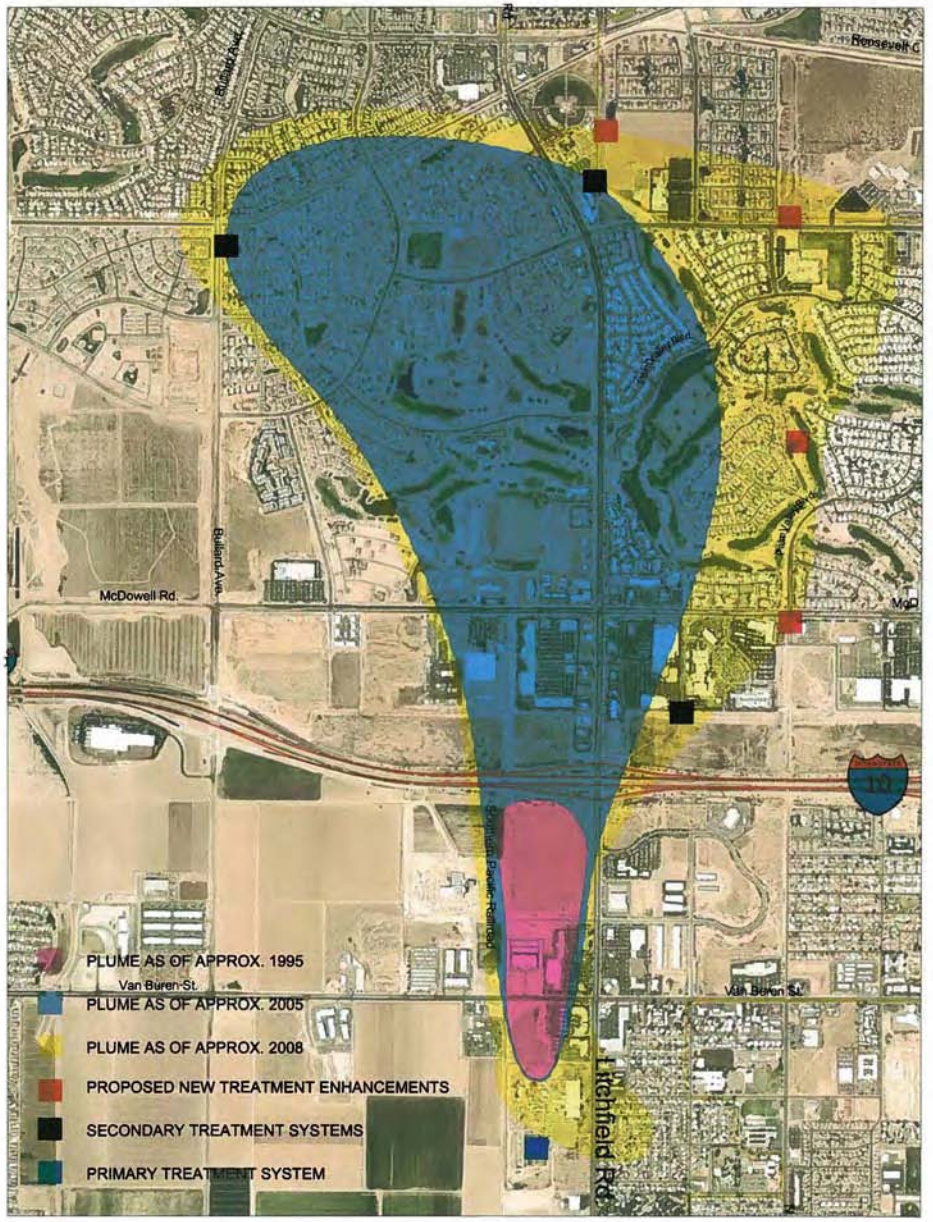
- Kirk Craig, P.E. (Project Manager) – 13 years of remediation and Superfund experience.
- Al Bilzi (Project Coordinator) - 15 years experience working on PGA-North.
- Edward Nemecek, R.G. (Senior Hydrogeologist) - Over 40 years of technical and management experience in water resources and contaminant hydrogeology.
- Stephanie Koehne, (Asst. PM, Project Geologist, QA/QC) Over 7 years of experience in technical and managerial hydrology and environmental consulting.
- Mike Hansen, P.E. (Matrix New World - Remediation Strategy/Operations Adviser) – In charge of building demolition.

The Groundwater Plume

- Pink – Approx. Plume in 1995.
- Blue – Approx. Plume in 2005.
- Yellow – Approx. Plume in 2008.

What Happened?

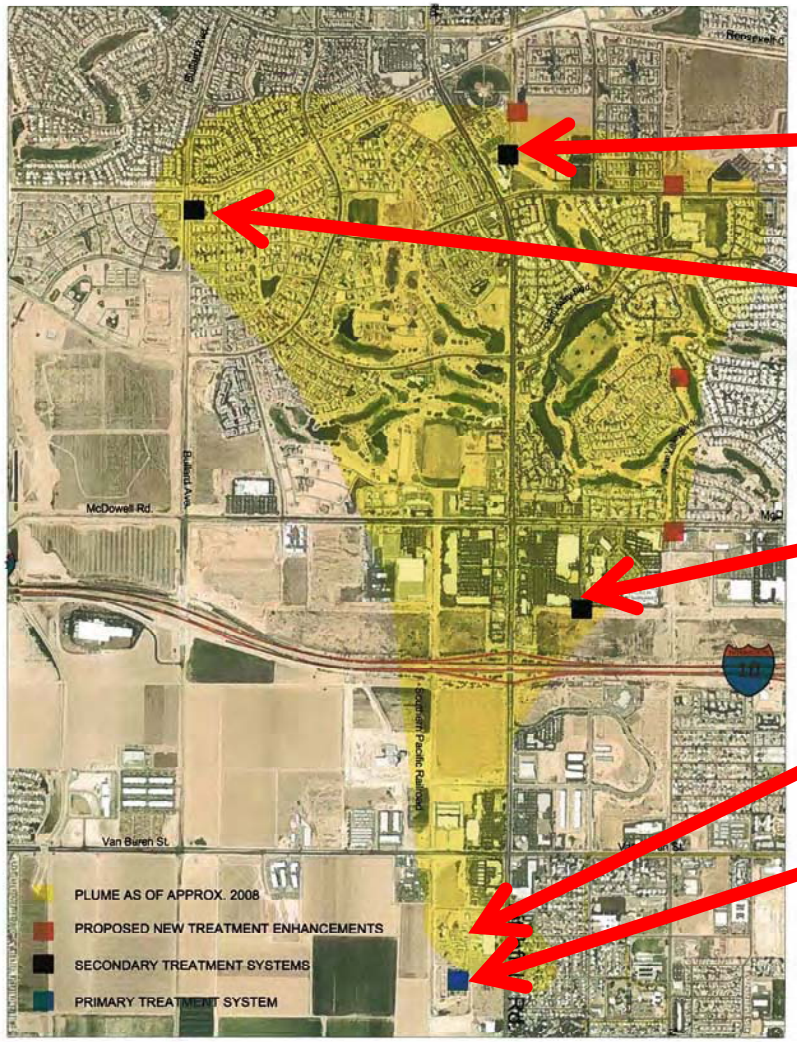
- Thorough investigations continued.
- Litchfield Park Service Co.(LPSCo) increased groundwater pumping.
- Avondale's pumping increased from 3,703 acre-feet in 2000 to 11,461 acre-feet in 2007. An increase of over 300 percent!



Groundwater Investigation

- Fifteen Monitor Wells installed in Year One of the Groundwater Investigation (Feb. 2006 – Oct. 2007)
- Eleven Monitor Wells installed in Year Two of the Groundwater Investigation (Oct. 2007 - Feb. 2009)
  - Final Year Two monitor well to be completed February 2009
- Eleven Monitor Wells Anticipated for Year Three of the Groundwater Investigation
- Groundwater Monitoring
  - 62 monitoring wells
  - 14 production wells
  - 10 remediation extraction wells
  - 1 golf course lake and waterfall

Existing Treatment Systems



EA-06 Groundwater Treatment System

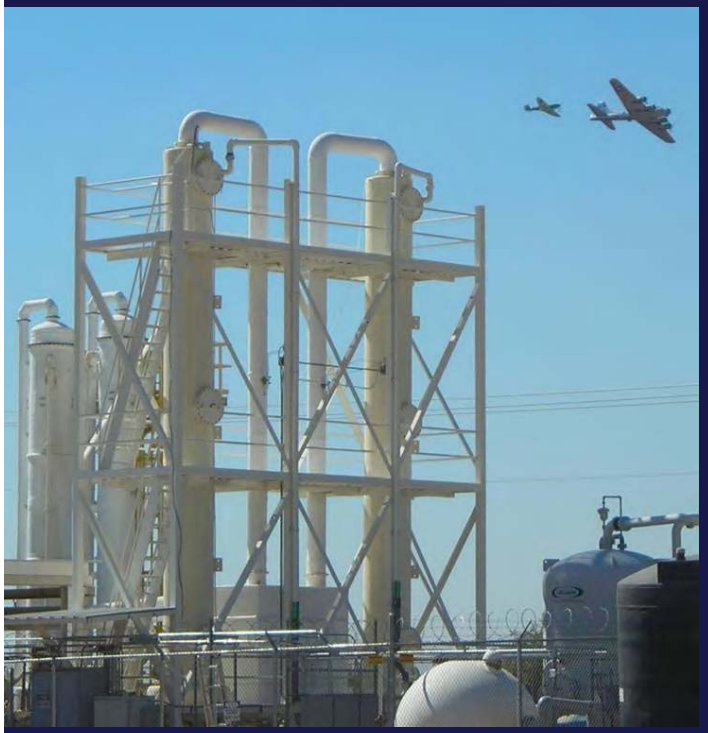
33A Groundwater Treatment System

EA-05 Groundwater Treatment System

Soil Vapor Extraction System

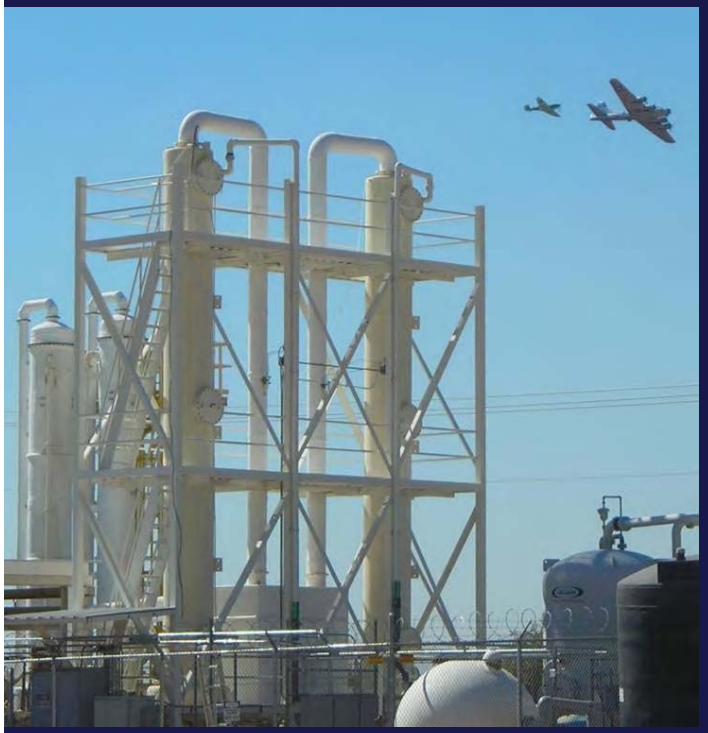
Main Groundwater Treatment System

Groundwater Treatment
Main Treatment System



- Seven Groundwater Extraction Wells
- Six Treated Water Re-Injection Wells
- Treats up to 600 gallons per minute.
- Operating Since 1994.

Groundwater Treatment
Main Treatment System



- Total Volume of Water Treated from 1994 through 2008.
  - 6,236,739,966 gallons (>10,000 Olympic sized pools)
- Total Mass of TCE Removed from 1994 through 2008.
  - 51,222 pounds (>25 tons)
- Total Mass of Perchlorate Removed from 1994 through 2008.
  - 89 lbs

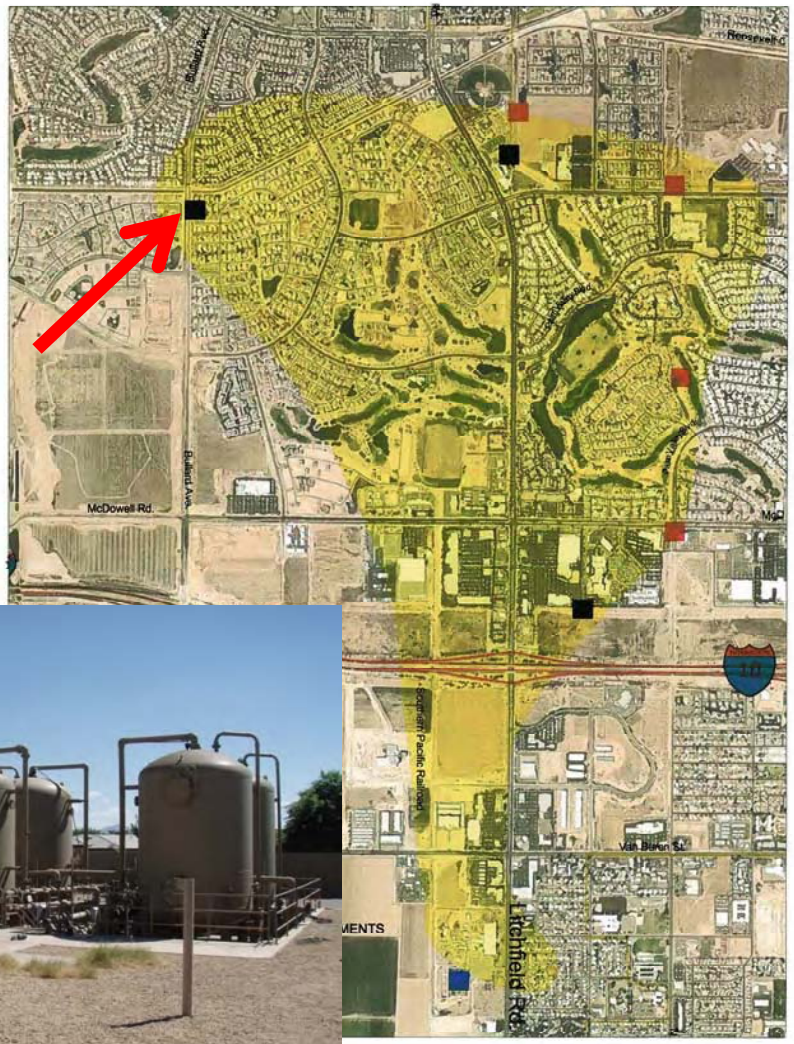
Groundwater Treatment
Main Treatment System

Main Treatment System Expansions

- Convert monitoring well PZ-01 into a 70 gpm extraction well
- Connect PZ-01 discharge to EA-03 piping
- Install new HDPE piping dedicated to MW-20 discharge only
- Route EC-01 discharge directly to air stripper units (bypass perchlorate treatment)
- Upsize pump installed in EA-01 to pump 120 gpm
- Volume of treatment system capacity has recently been increased by 10%

Groundwater Treatment Treatment System 33A

- One groundwater extraction well at approx. 750 gallons per minute.
- Discharges clean water to RID Canal.
- Operating Since 1997.

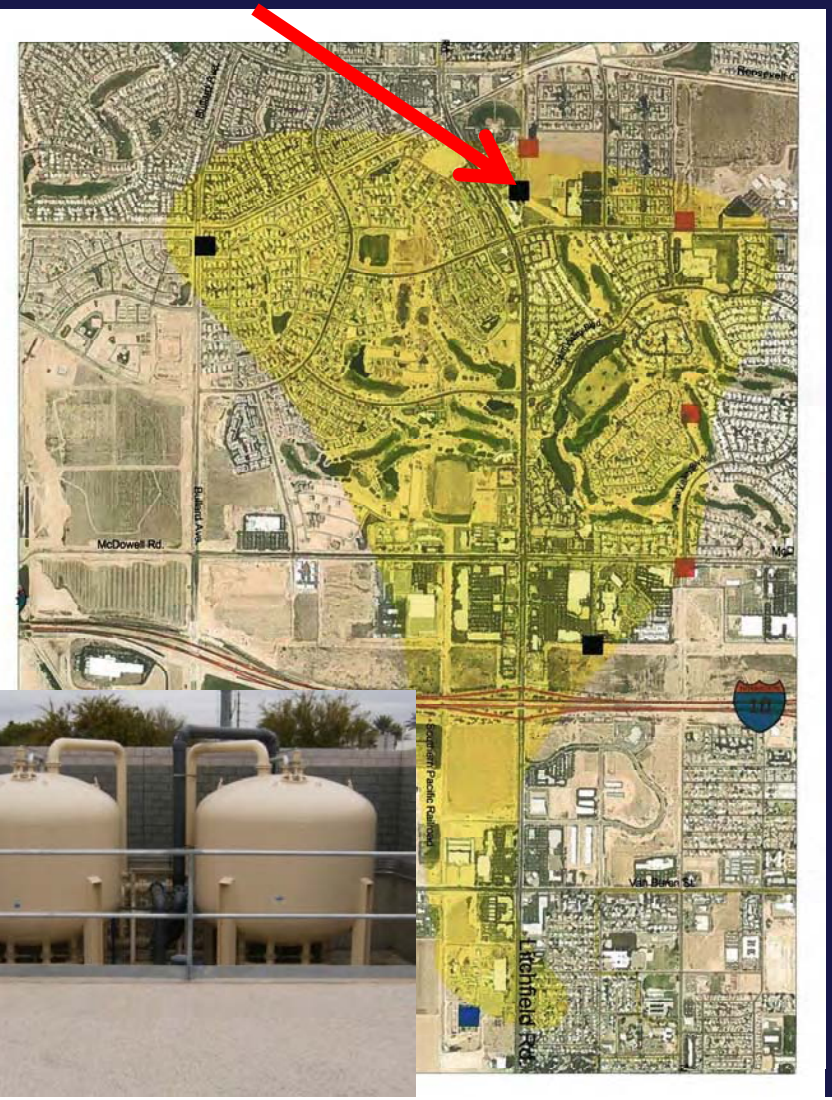


Groundwater Treatment Treatment System 33A

- Total volume of Groundwater treated from 1997 through 2008.
  - 4.3 Billion Gallons.
- Total Mass of TCE removed from 1997 through 2008
  - 7,676 pounds.

Groundwater Treatment Treatment System EA-06

- One groundwater extraction well at approx. 550 gallons per minute.
- Discharges clean water to RID Canal.
- Operating Since January 2008.

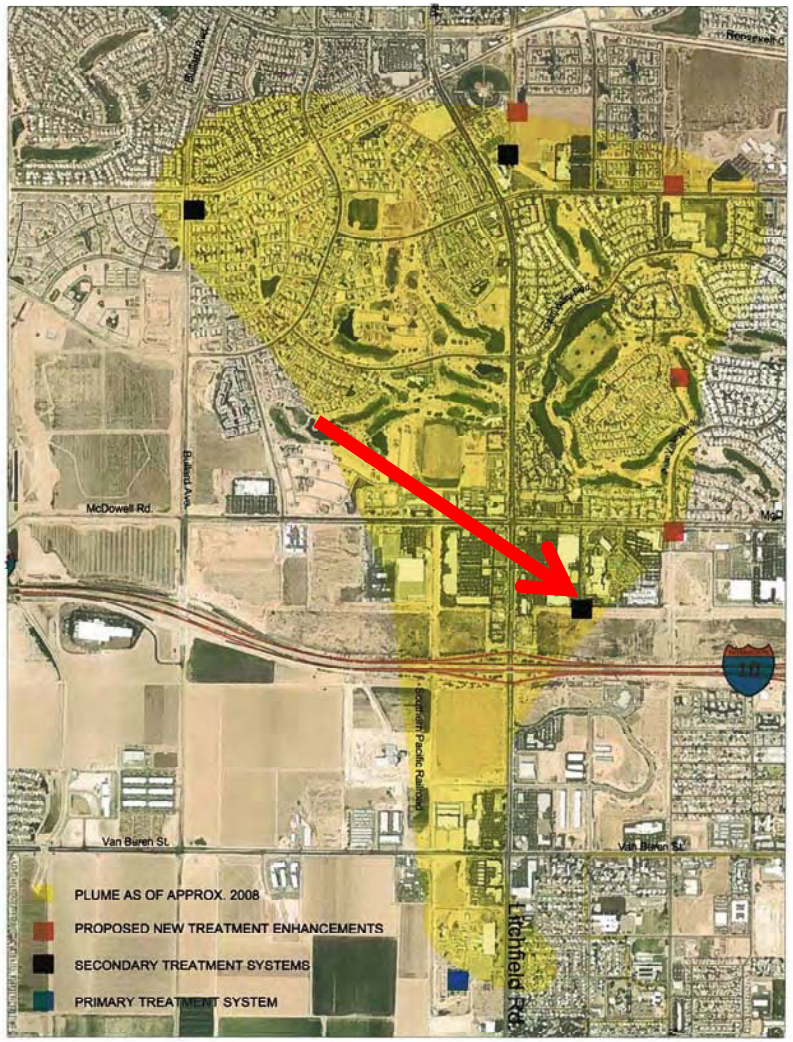


Groundwater Treatment Treatment System EA-06

- Total volume of groundwater treated since startup (January 2008 through December 2008).
  - 202.9 Million Gallons.
- Total mass of TCE Removed since startup
  - 158 pounds.

Groundwater Treatment Treatment System EA-05

- One groundwater extraction well at approx. 500 gallons per minute.
- One clean water re-injected well.
- Wells located on Flood Control District of Maricopa County property at 13737 West McDowell Road
- Operating Since March 2008.
- Equipped with cellular remote alarm alert system in June 2008 to reduce extended periods of downtime



Groundwater Treatment Treatment System EA-05

- Total volume of groundwater treated since startup (March through December 2008).
  - 181.9 Million Gallons.
- Total Mass of TCE removed since startup.
  - 59 pounds

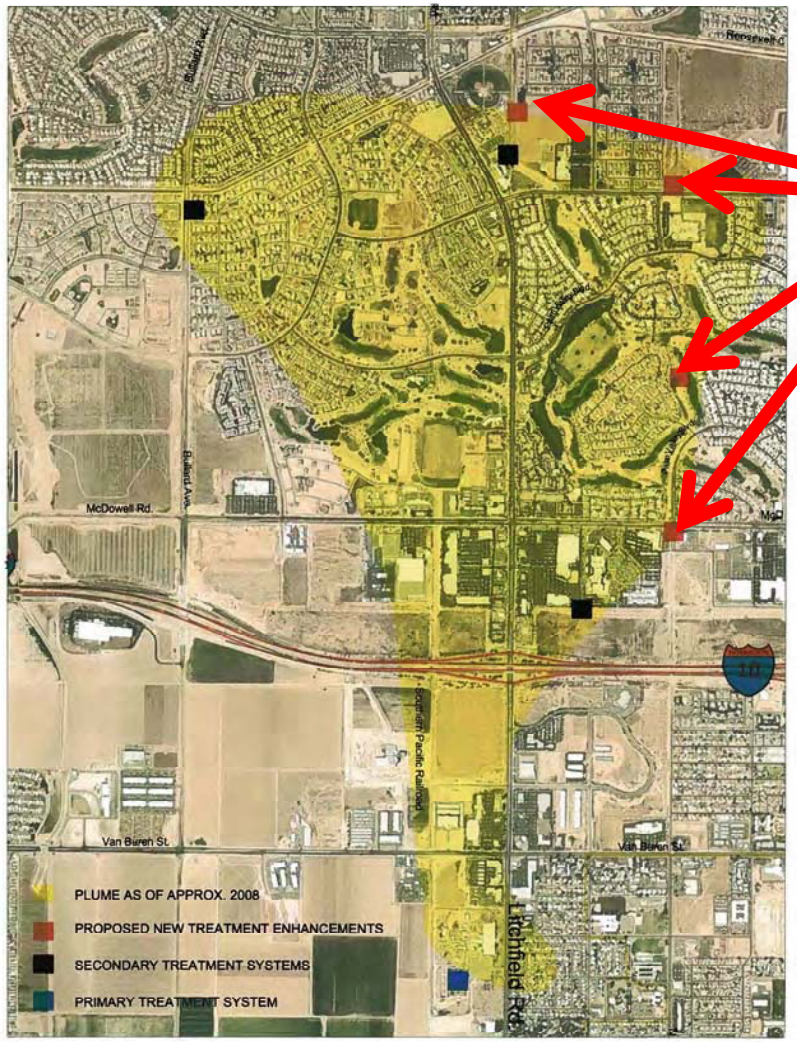
Soil Treatment
Vapor Extraction System

- Extraction and treatment of volatile organic compounds from the on-site soils.
- Originally installed in 1996 Restarted in 2004.
- Results of upcoming Soil Gas Investigation
  - May result in modifications to increase capacity

Soil Treatment
Vapor Extraction System

- Carbon filters for vapor treatment.
- 9 - Vapor Extraction wells and 15 - Vapor Monitor wells.
- 11,302 pounds of TCE removed from 1996 through 2008
- 12,215 lbs of VOCs removed from 1996 through 2008

Potential Additional Groundwater Extraction & Treatment



- Exploring possible locations of potential expansions to current groundwater treatment.
- Intend to utilize existing treatment systems.
- Anticipated over next 1 to 2 years.
- Intended to increase capture of the plume.

Building Demolition

- Demolition activities anticipated to begin March 2009

- Demolition will include:
  - Removal of All Above Grade Structures
  - Removal of Concrete Slabs
  - Removal of Structures Below Slabs
  - Proper Recycling, Disposal, or Beneficial Reuse of All Residual Materials

Building Demolition

- To be conducted in conjunction with Phase II of the Source Areas, Soils and Facility Structures Investigation (SASFS).
- All Remediation Components Remain in Place
- Complete in in 2009.

Source Areas, Soils and Facility Structures Investigation Phase II

- Additional Sampling Based on Phase I results completed during the Second and Third Quarters of 2007

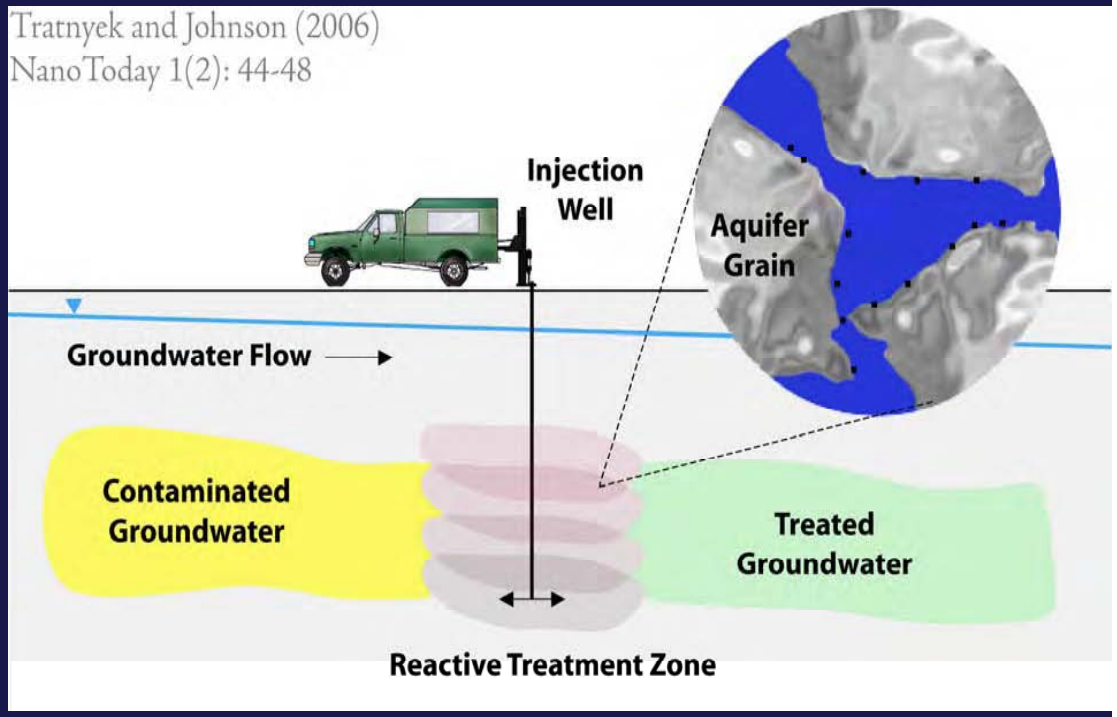
- In conjunction with demolition activities
- Work includes:
  - Review of Historic Documentation
  - Inspection of building interiors for potential source areas
  - Survey of potential source areas within facility structures
  - During demolition - survey of building slabs and sub-slabs
  - Approximately 25 additional soil samples

Soil Gas Investigation

- Developed to address data gaps from prior soil gas and source area investigation
  - Previous soil gas investigation work from 1984 and 2007
  - Investigations include soil, soil gas, indoor air, and groundwater
  - Upcoming investigation work to include six borings to approx. 80 deep.
  - Field work to start after the completion of the building demolition

Innovative In-Place Groundwater Treatment

- Crane Co. continues to evaluate treatment of groundwater using nano-scale zero valent iron (nZVI).
- Chemically reduces contaminants to non-harmful compounds
- nZVI reactivity is strong and rapid
- Evaluating costs for potential scale-up
- Crane Co. & USEPA may evaluate other proven technologies in the future



Questions?

Project Manager
Kirk Craig
(480) 794-1285

Phoenix-Goodyear Airport-South Project Site Status Report

Community Advisory Group

Meeting February 5, 2009

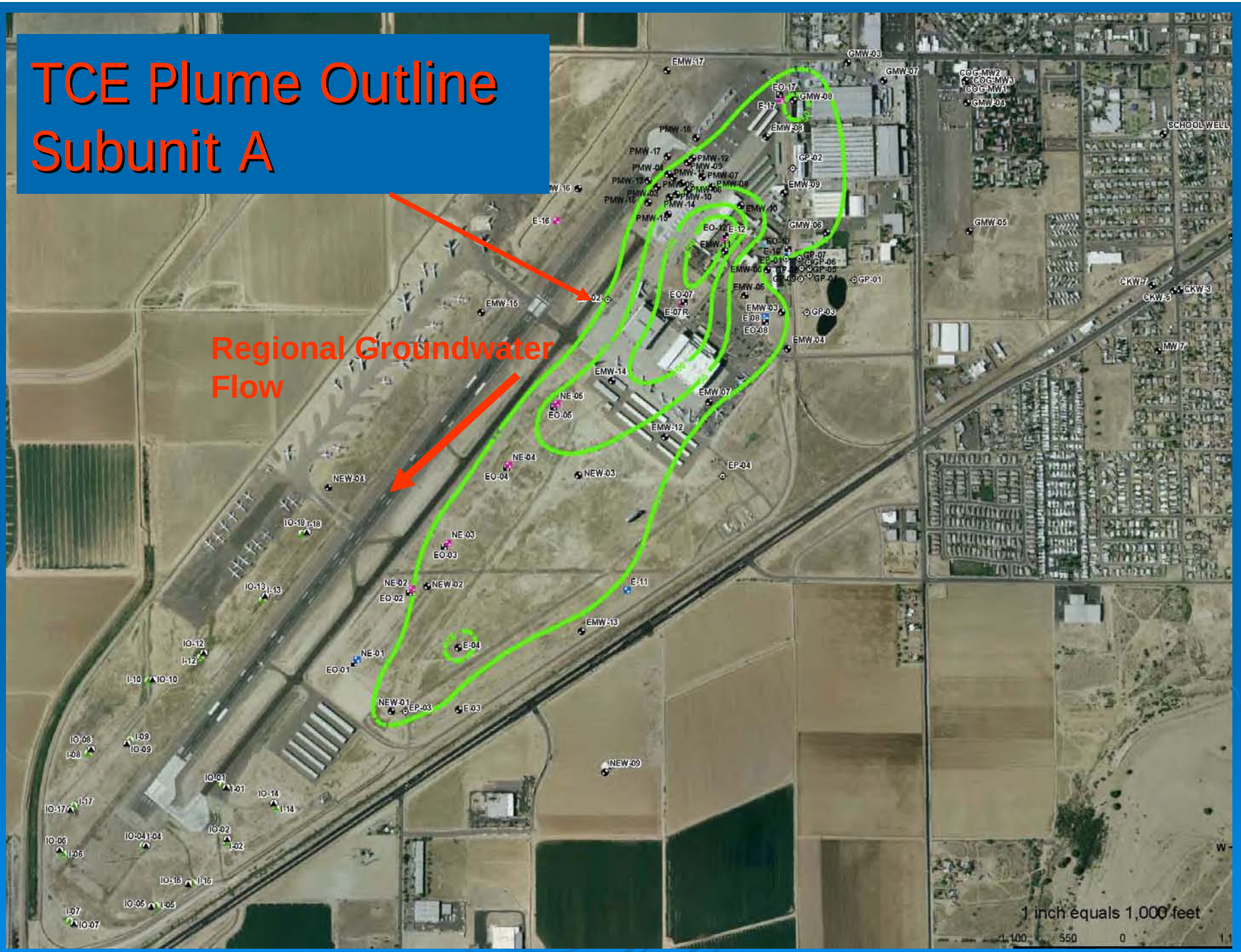
Agenda

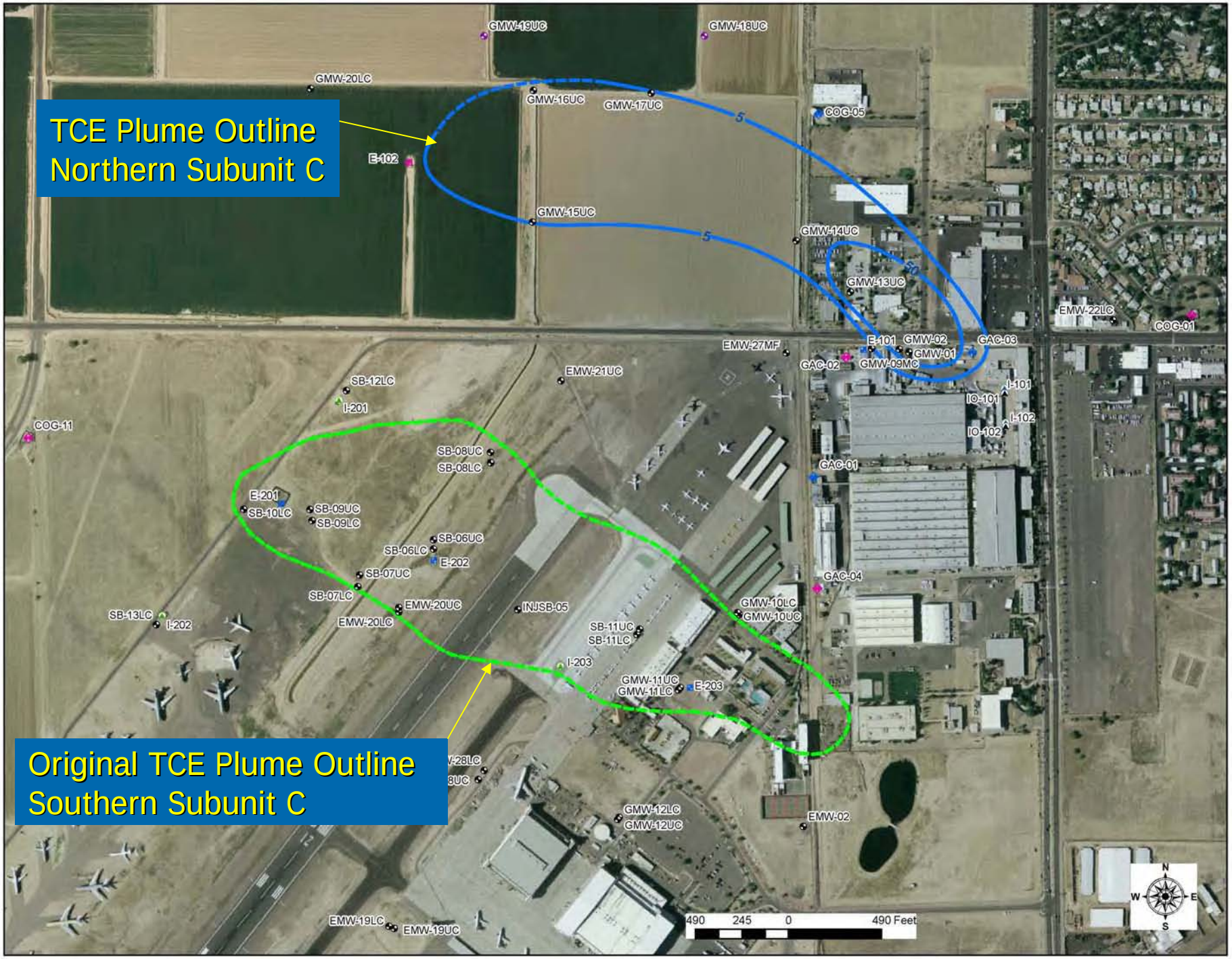
- Review current activities
- Update status of ongoing cleanup
- Upcoming activities

Review of Current Activities

- Issued intermediate data report while continuing active pumping and treatment of well GAC-04
- North Subunit C Plume investigation proceeding
- Received Agencies approval of Comprehensive Groundwater Monitoring Plan
- Resolving remaining issues on QAPP
- Received approval for Vapor Intrusion Work Plan
- Submitted Revised Focused Feasibility Study

TCE Plume Outline Subunit A




TCE Plume Outline
Northern Subunit C
Original TCE Plume Outline
Southern Subunit C
GMW-19UC
GMW-18UC
GMW-20LC
GMW-16UC
GMW-17UC
COG-05
E-102
GMW-15UC
GMW-14UC
GMW-13UC
EMW-22LC
COG-01
E-101
GMW-02
GAC-03
GMW-01
EMW-27MF
GAC-02
GMW-09MC
EMW-21UC
SB-12LC
I-201
I-101
IO-101
I-102
IO-102
COG-11
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
EMW-20UC
INJSB-05
GMW-10LC
GMW-10UC
SB-13LC
I-202
EMW-20LC
SB-11UC
SB-11LC
I-203
GMW-11UC
GMW-11LC
E-203
GMW-12LC
GMW-12UC
EMW-02
EMW-19LC
EMW-19UC
490 245 0 490 Feet
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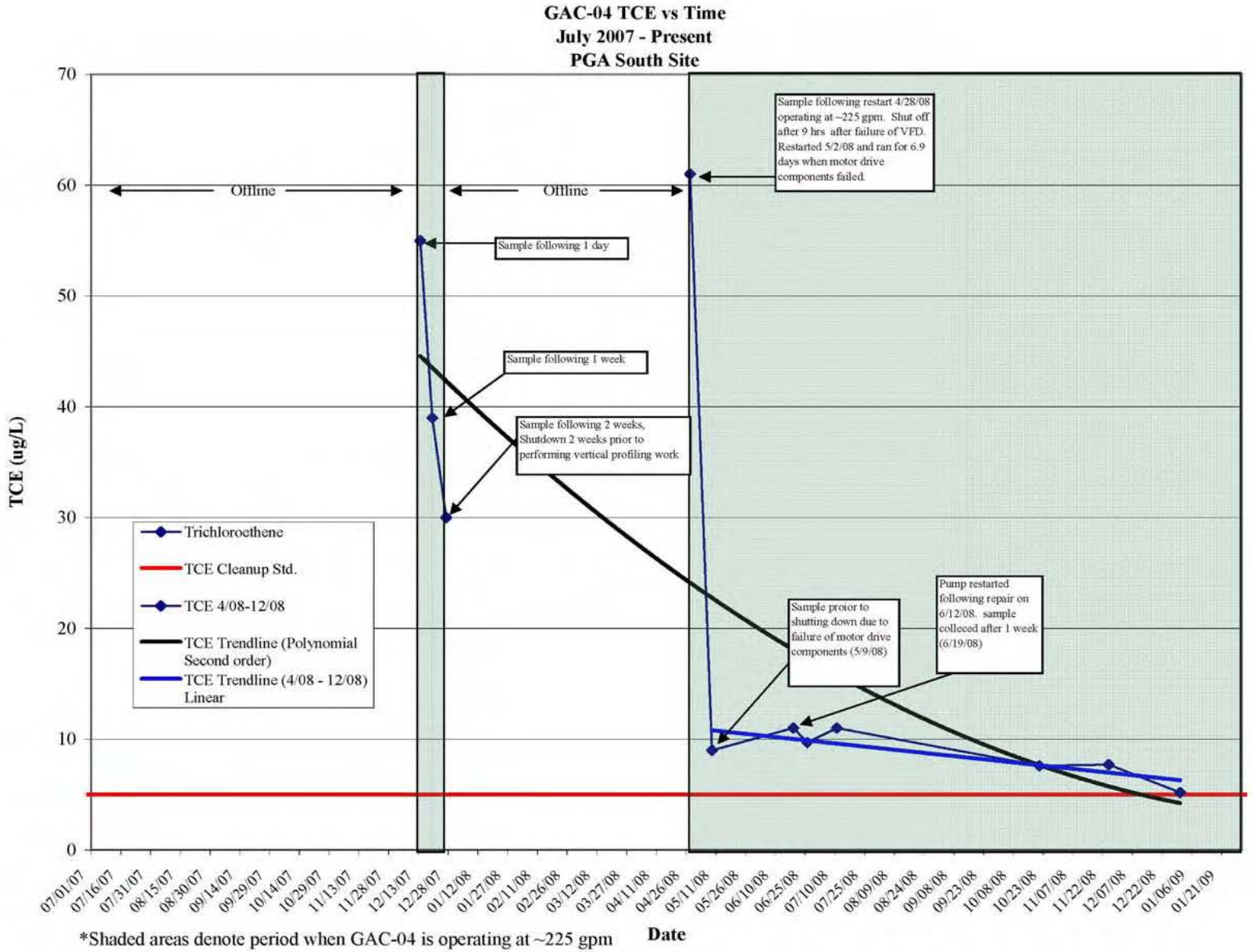
North Plume Delineation

- Well GMW-20 drilled in Subunit C
- Initial grab sample results in Subunit A; Upper, middle, and lower Subunit C
- GMW-20 developed and sampled 1/22/09
  - TCE - 3.2 ug/l
  - Chromium (VI) - 13 ug/l
- Access agreement obtained to allow installation of GMW-18 & 19 in 2/09

GAC-04 Update

- Tied inactive production well to the Subunit A treatment system in July 2007
- Conducted hydrophysical testing of well in January 2008
- Actively pumping well and treating since May 2008 (55 MGal treated to date)
- TCE concentrations ranged from 61 ug/l at startup (5/08) to 5.4 ug/l in 1/09, but concerned with rebound
- Goodyear's Evaluation of well due to Agencies 3/2/09



*Shaded areas denote period when GAC-04 is operating at ~225 gpm

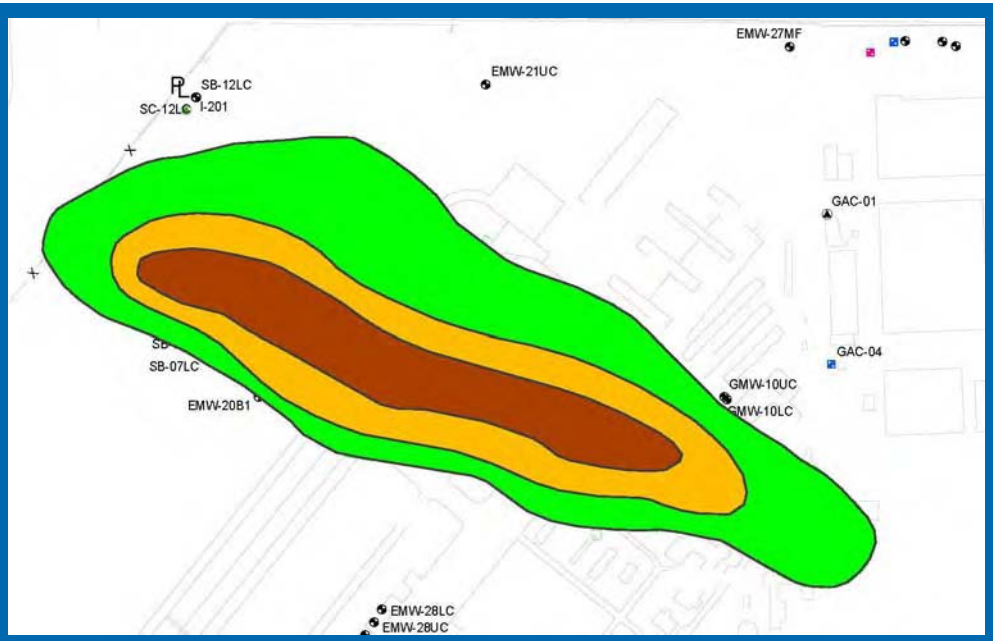
Status of cleanup

- 2008 Groundwater Treated
  - Subunit A – 250 MGal
    - 2008 system uptime of 98%
  - Southern Subunit C – 38 MGal
  - Northern Subunit C – 253 MGal
- Currently there are no monitoring wells in the Southern Subunit C plume that exceed the site cleanup goal

TCE Concentrations

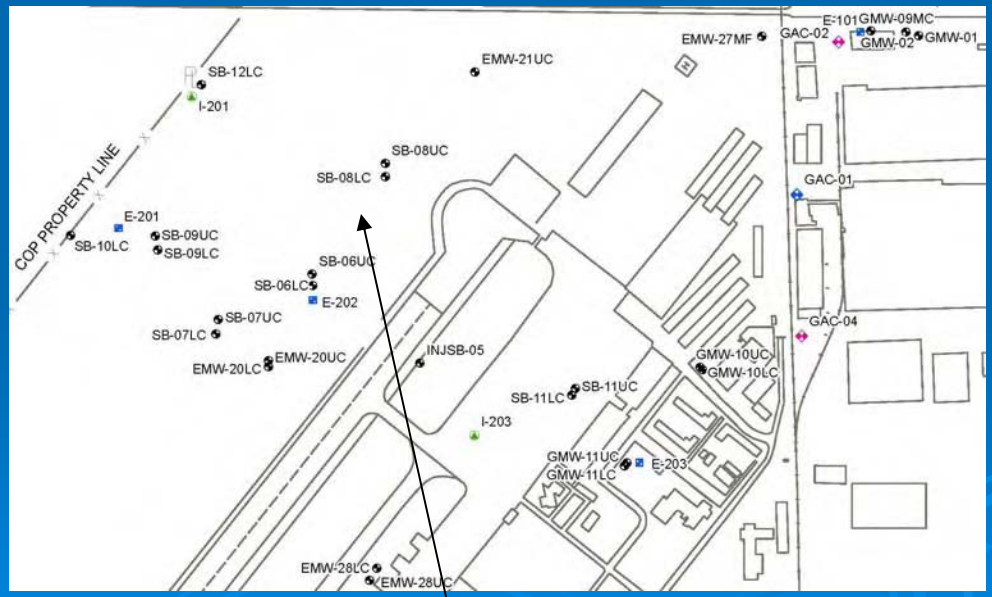
Subunit	Max TCE (µg/L) 1990	Max TCE (µg/L) 11/08
Subunit A	2600	120 (E-12)
Southern Subunit C	150	1.8 (E-201)
Northern Subunit C	180	70 (GMW-13UC)

1994 TCE



SOUTHERN PLUME

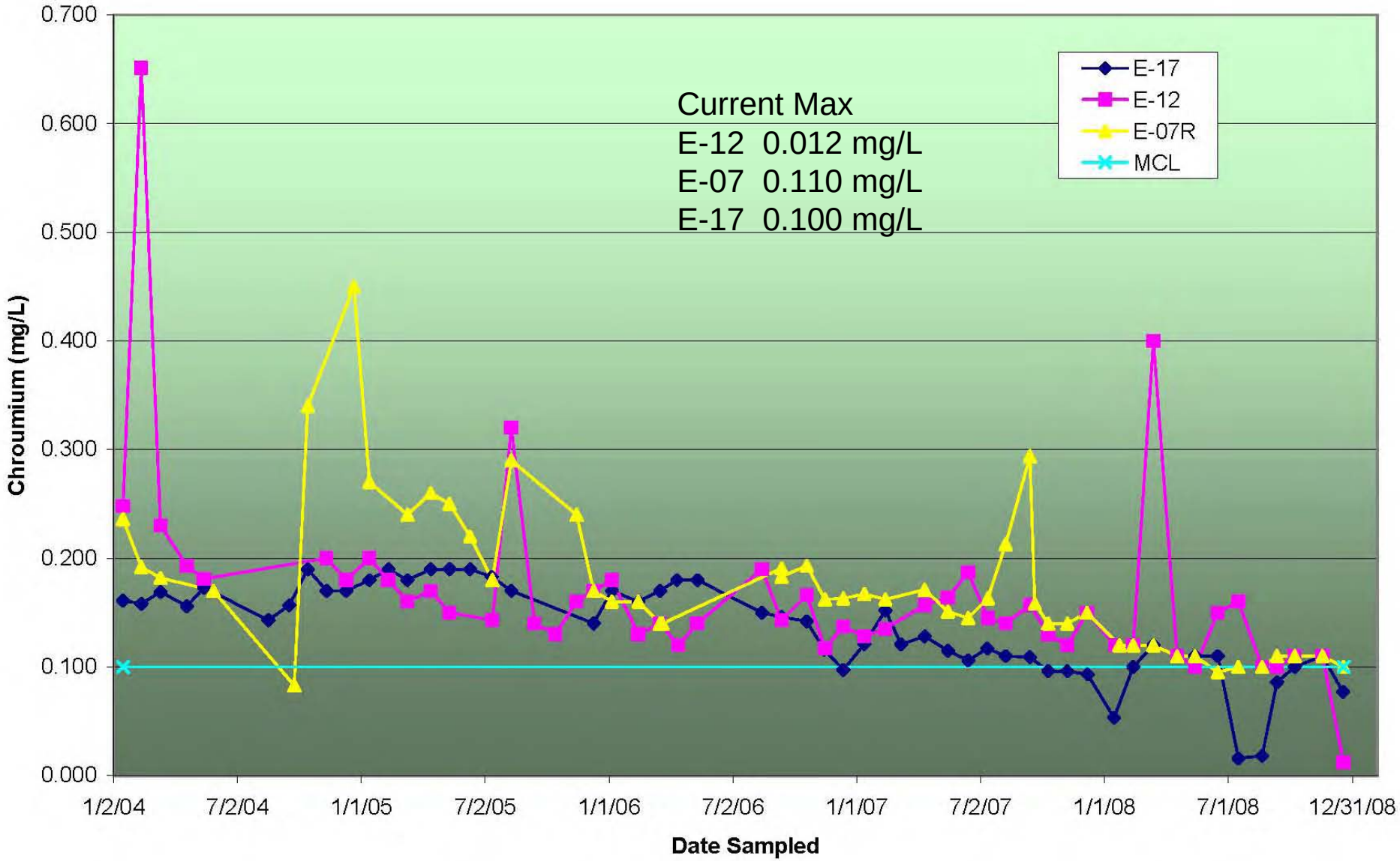
2008 TCE



- 5ug/L
- 10ug/L
- 25ug/L
- 50ug/L
- 75ug/L
- 100ug/L

Well SB-08LC contained TCE at 1.0 ug/L 11/08

CRT Trends Vs. Time Through December 2008



Upcoming Activities

- Vapor intrusion sampling scheduled for March 2009
- Discuss Feasibility Study with EPA/ADEQ
  - Evaluate Chromium Treatment Technologies
- Conduct annual groundwater sampling event (February)

Goodyear's Zero Waste-To-Landfill Policy

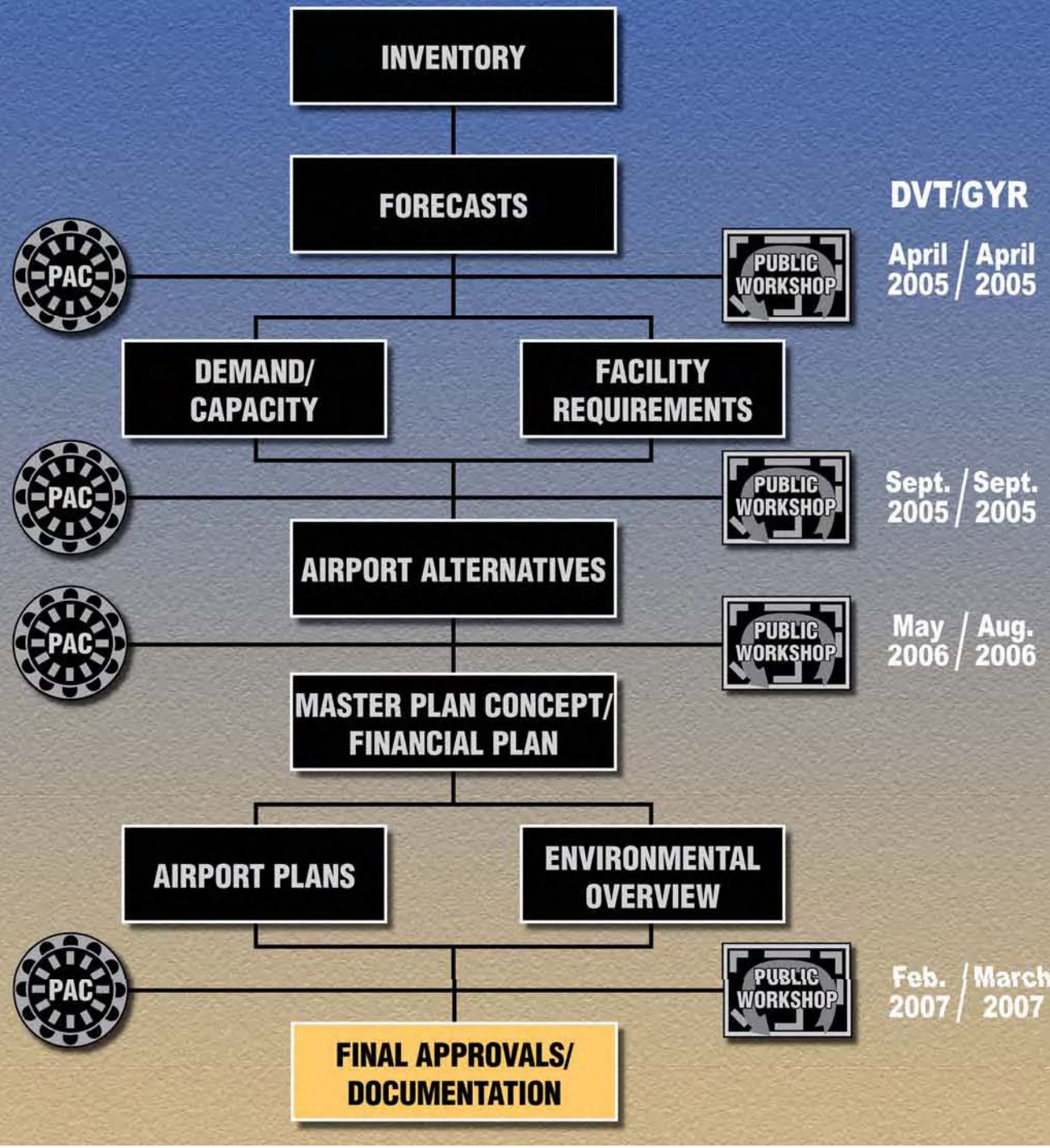
PHOENIX

GOODYEAR AIRPORT

AIRPORT MASTER PLAN

PHOENIX DEER VALLEY & GOODYEAR AIRPORTS

Project Work Flow



LEGEND

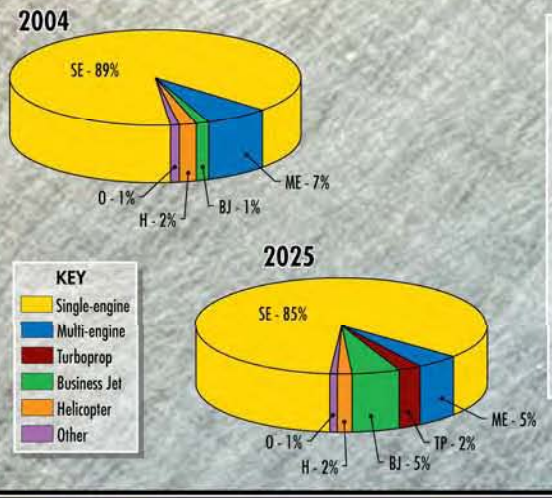
- Completed Work
- Existing Work

PHOENIX GOODYEAR AIRPORT

"Unconstrained" Forecast Summary

	2004	2010	2015	2025
BASED AIRCRAFT				
Single-Engine Piston	185	277	348	525
Multi-Engine Piston	15	20	23	30
Turboprop	0	4	8	16
Business Jet	3	7	14	33
Helicopter	4	6	7	10
Other	2	3	4	5
Total Based Aircraft	**209**	**317**	**404**	**619**
ATCT OPERATIONS COUNT				
General Aviation				
Local	40,389	90,000	120,000	185,000
Itinerant	57,706	95,000	125,000	185,000
Total General Aviation	*98,095*	*185,000*	*245,000*	*370,000*
Air Taxi	3,856	6,000	9,000	13,000
Military	3,520	4,000	4,000	4,000
Total ATCT Operations	**105,471**	**195,000**	**258,000**	**387,000**

BASED AIRCRAFT

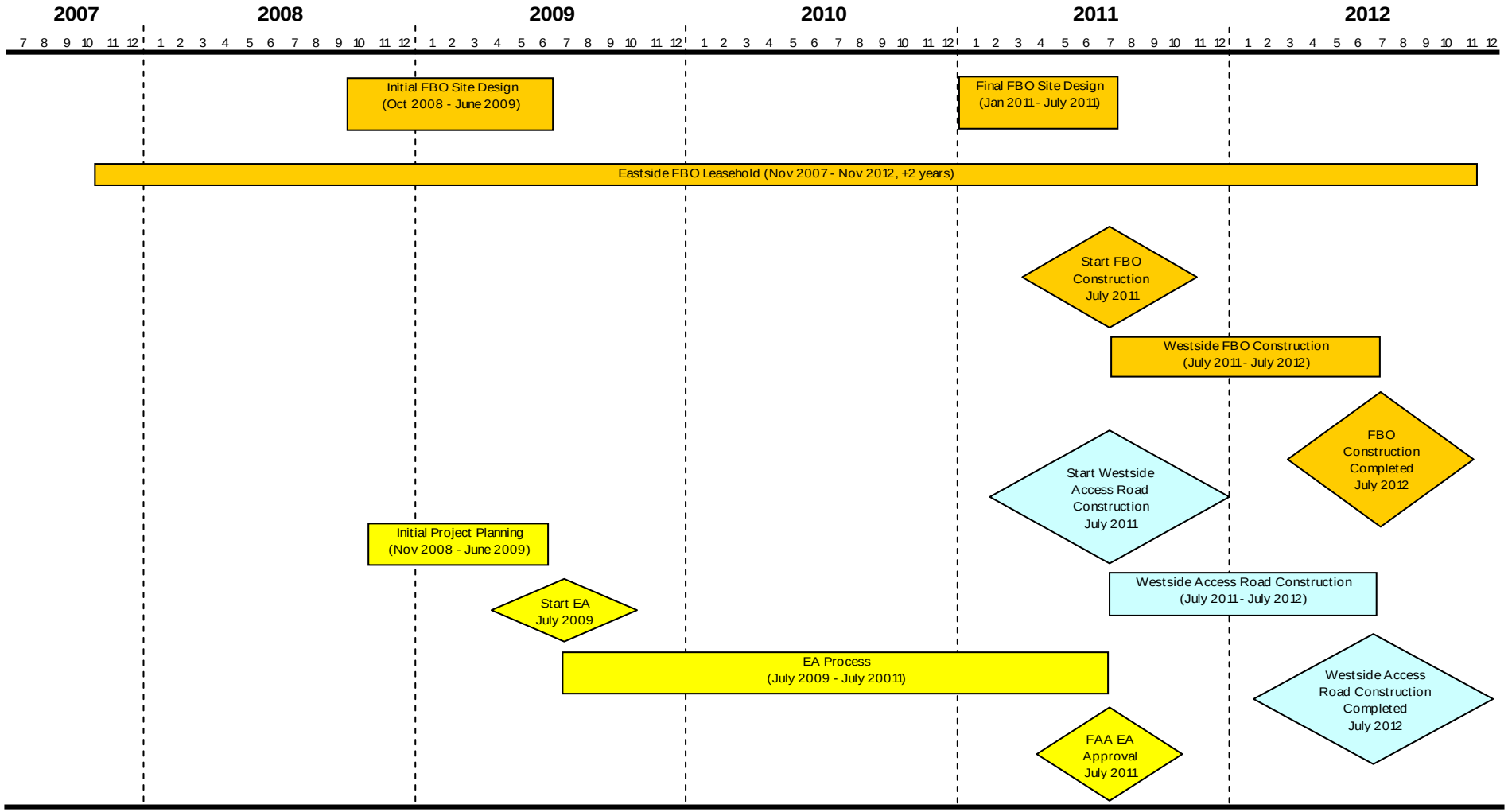


ATCT OPERATIONS

PHOENIX GOODYEAR AIRPORT

Recommended Master Plan Concept

DRAFT
GYR FBO Development Schedule



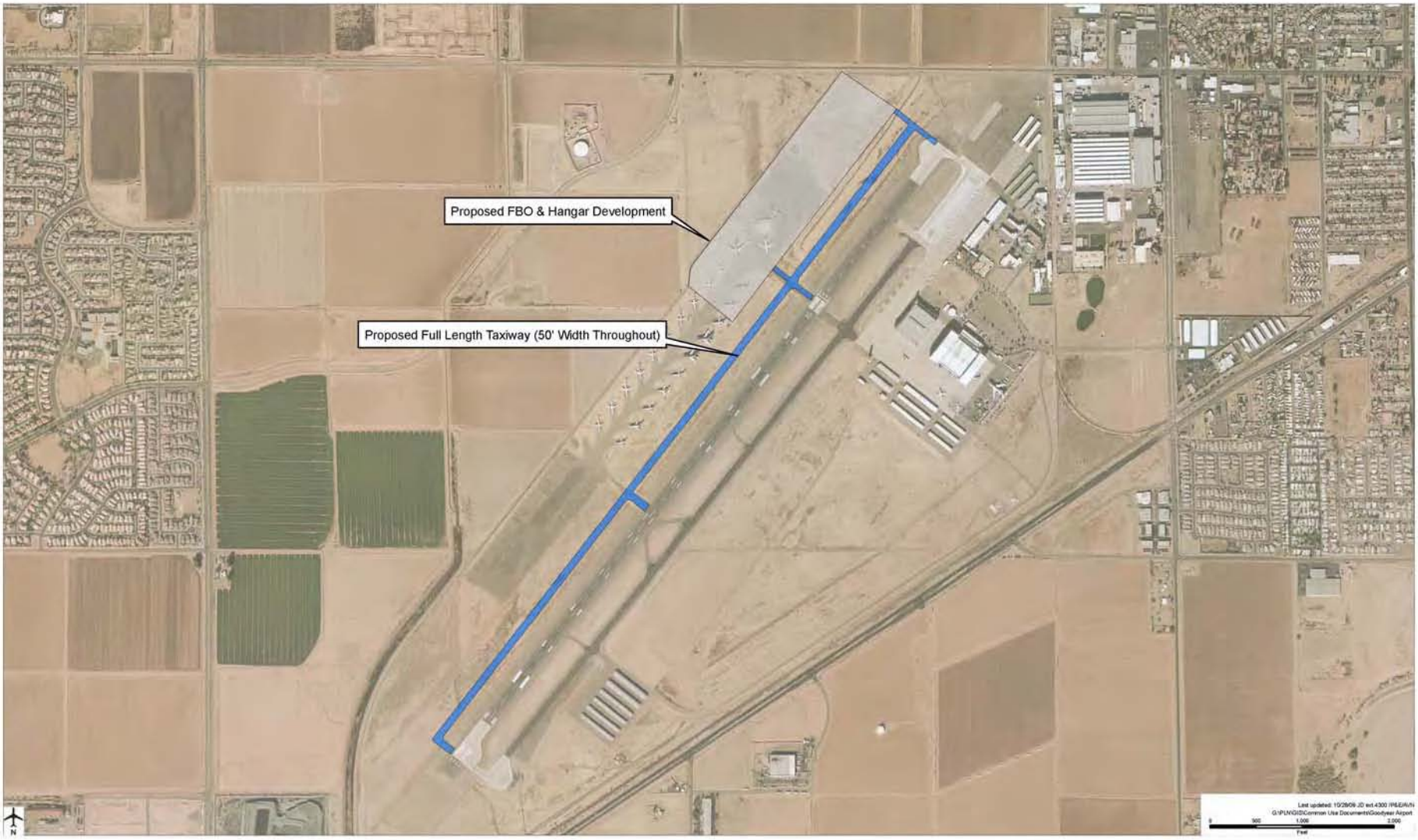
Legend

- Right Path
- City of Goodyear
- City of Phoenix

EA = Environmental Assessment
FBO = Fixed Based Operator

PHOENIX GOODYEAR AIRPORT

PHOENIX GOODYEAR AIRPORT - PROPOSED DEVELOPMENT OPTIONS (FOR DISCUSSION PURPOSES ONLY)



1 SOUTH EXTERIOR ELEVATION

2 EAST EXTERIOR ELEVATION

3 NORTH EXTERIOR ELEVATION

4 WEST EXTERIOR ELEVATION

RIGHTPATH LIMITED
Development Group

Larson Associates Architects, Inc.
3827 North 24th Street, Suite 100
Phoenix, AZ 85016
602.955.9929 602.764.4790 FAX
dlarg@larsonarchitects.com

Larson

LUX AIR - GOODYEAR
FIXED BASE OF OPERATIONS
GOODYEAR, ARIZONA

EXPIRES: 6/30/2009

Drawing Name:
EXTERIOR ELEVATIONS

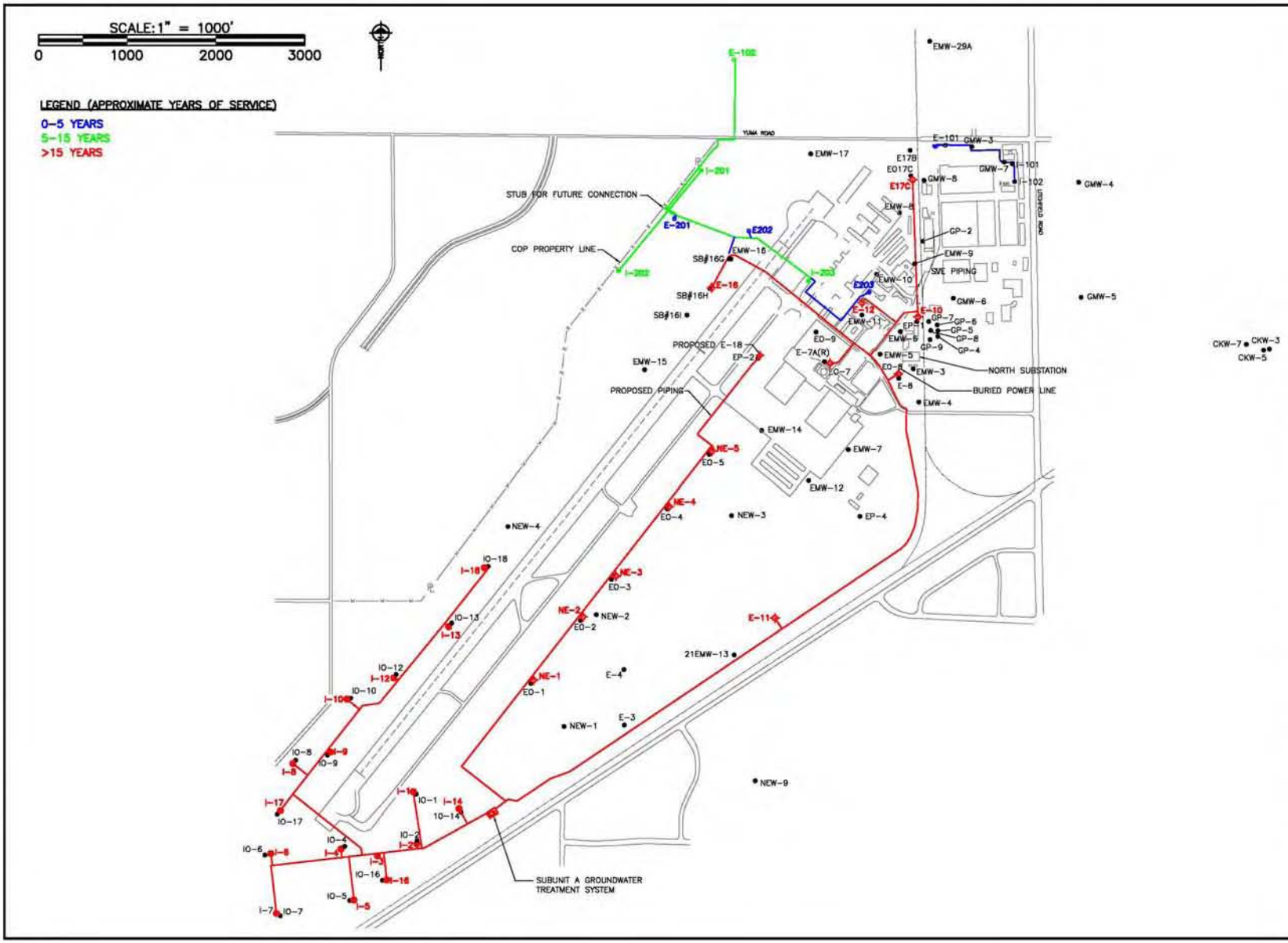
Revisions

Date: 04/30/08

Project Number:
TBD

Drawing No:
A2.0

PHOENIX GOODYEAR AIRPORT



PHOENIX-GOODYEAR AIRPORT
GOODYEAR, ARIZONA

THE GOODYEAR TIRE & RUBBER COMPANY - REMEDIATION SYSTEMS INFRASTRUCTURE MAP

SHARP AND ASSOCIATES, INC.
756 Park Meadow Rd
Westerville, Ohio 43081
(614) 508-1200
Fax (614) 508-1201
www.sharpenv.com

File Name: COP master plan.dwg
Project No.: 5110
Sheet 1 of 1
Figure No.: 1
Revision:

Mark | Date | Description | Design | Drawn | Check

R:\5110\Dwg files\COP master plan.dwg, 11/14/2005 8:43:55 AM, Mikael Lit

PHOENIX GOODYEAR AIRPORT

Groundwater Cleanup Infrastructure

PHOENIX GOODYEAR AIRPORT

QUESTIONS?

WESTERN AVENUE
Water Quality Assurance Revolving Fund (WQARF) Site

February 5th, 2009

ADEQ Arizona Department of Environmental Quality

Western Avenue WQARF Site

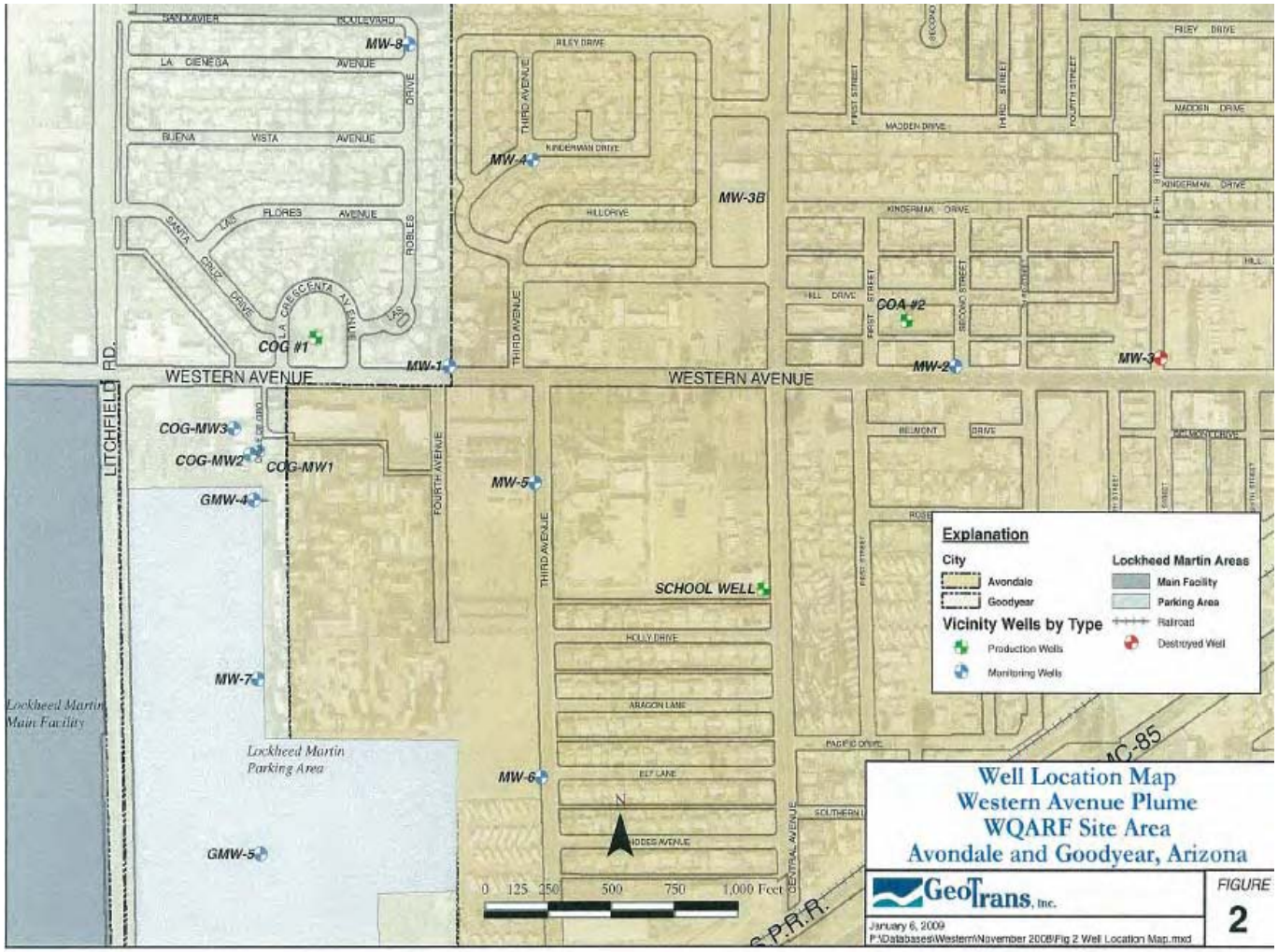
PCE Concentrations (µg/l)

Well/Date	2/13/2008	8/1/2008	9/16/2008	10/13/2008	11/14/2008	12/11/2008	1/9/2009
MW-1	**8.4**	3.8	2.8	3.3	**5.0**	**6.2**	3.5
MW-2	2.5	3.5	4.3	**5.5**	3.1	**6.5**	4.5
MW-4	2.0	--	1.3	--	--	1.6	1.4
MW-5	0.72	0.56	<0.5	<0.5	<0.5	--	--
MW-8	--	--	--	--	--	--	0.94
COG-1	--	<0.5	<0.5	2.5	2.8	--	--

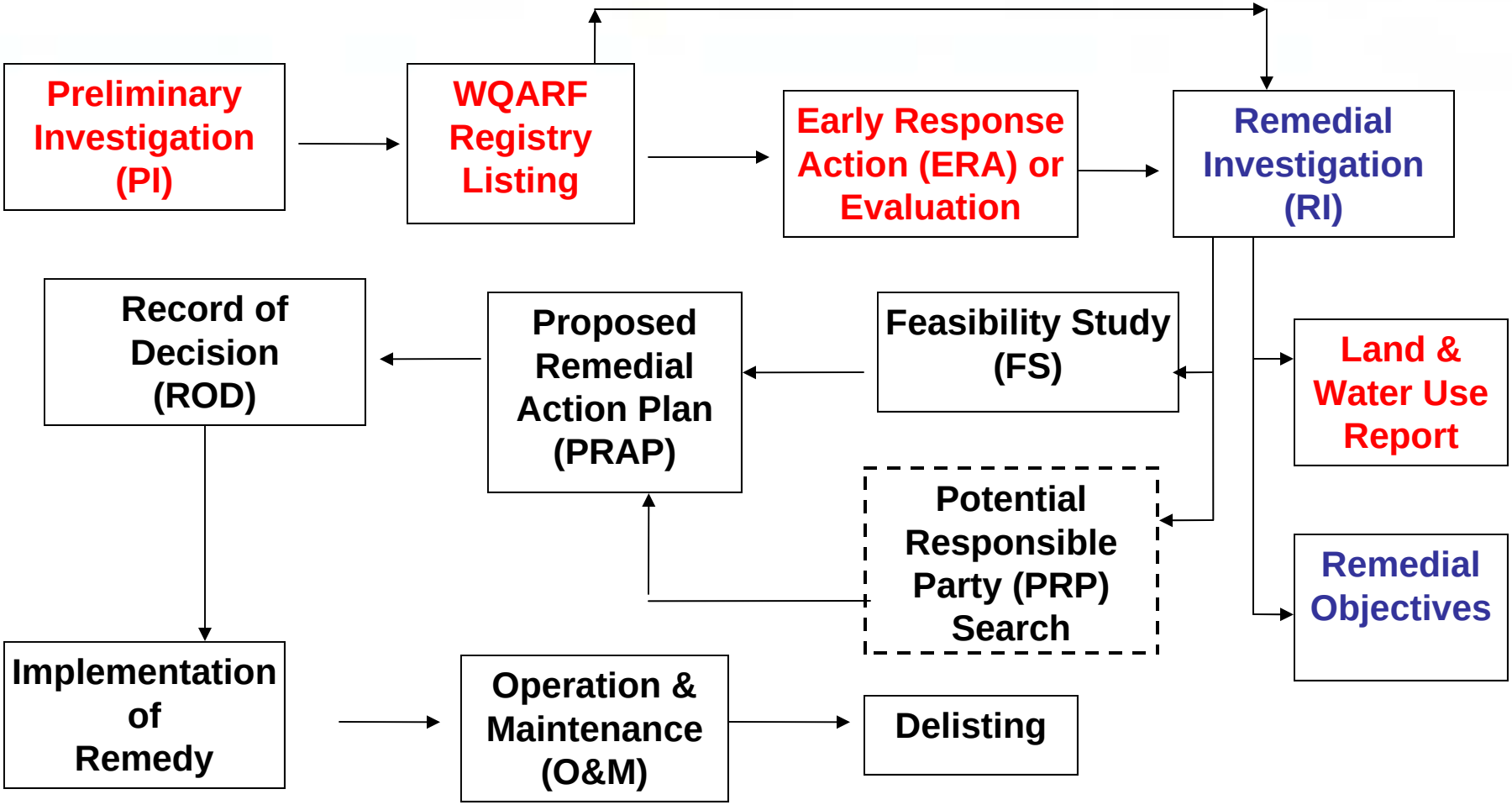
ADEQ Arizona Department of Environmental Quality

Western Avenue WQARF Site

Monitoring Well Placement



WQARF Phases



Public Comment Period

- **Remedial Objectives (ROs) R18-16-406(I)(4), are established for the current and reasonably foreseeable uses of land and beneficial uses of waters of the state.**

- **Pursuant to R18-16-406(D), Reasonably foreseeable uses of water are those likely to occur within one hundred years.**

Public Comment Period

- **The ROs chosen for the site will be evaluated in the feasibility study (FS) phase of the WQARF process. R18-16-407(A)**

- **The FS will evaluate specific remedial measures and strategies required to meet the ROs and propose a reference remedy and at least two alternative remedies.**

Public Comment Period

Remedial Objectives for Land Use

The extent of contamination in the soil at the Site has not been established. The source area for groundwater contamination was never been found. Concentrations of detected PCE were not found above the established soil remediation levels (SRLs).

- **With a lack of an identifiable release location in the areas that have been investigated, a remedial objective for land use is not warranted.**

Public Comment Period

Proposed Remedial Objectives for Irrigation and Municipal Uses

- Remedial Objectives for the current and future use of groundwater supply for irrigation and municipal use are:

- ***To protect the supply of groundwater for municipal and irrigation use and for the associated recharge capacity that is threatened by contamination emanating from the Western Avenue WQARF Site. To restore, replace or otherwise provide for the groundwater supply lost due to contamination associated with the Western 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 Western Avenue WQARF Site prohibits or limits groundwater use.***

Public Comment Period

- Following a 30-day public comment period for the proposed ROs, ADEQ will finalize the ROs with consideration of the comments it has received. The finalized ROs will become part of the final RI Report.

Comments must be received at ADEQ by close of business Monday, March 2nd, 2009.

Send comments in writing to ADEQ, Attention: André Chiaradia, WQARF Project Manager, 1110 W. Washington Street, 4415B-1, Phoenix, Arizona 85007

ADEQ Arizona Department of Environmental Quality

Western Avenue WQARF Site

Questions?

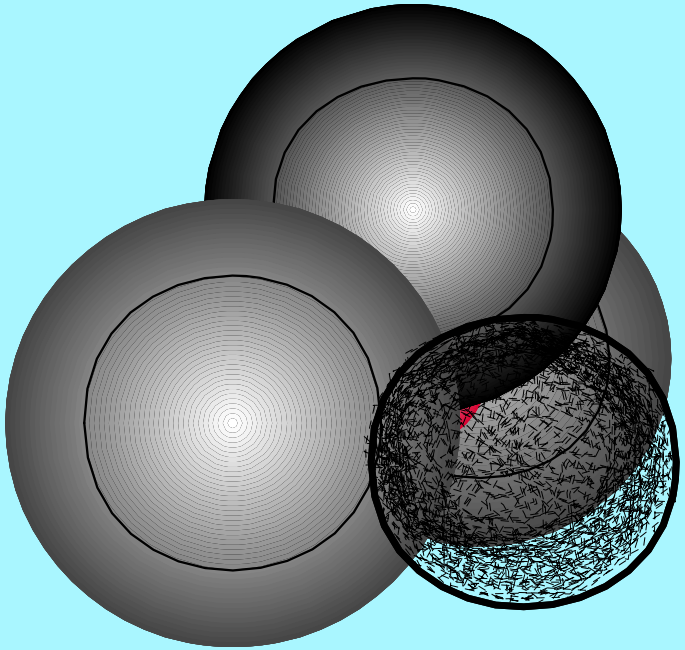
The Scientific and Regulatory Saga of PERCHLORATE

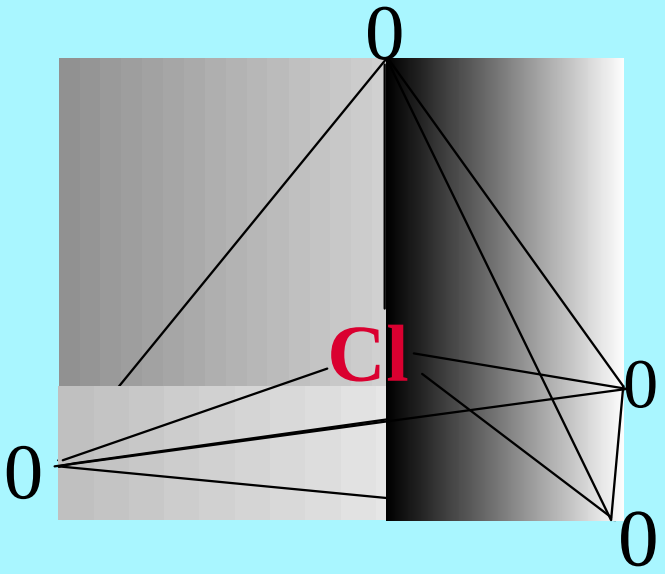
An EPA Region 9 Perspective

Kevin Mayer
U.S. EPA
Pacific Southwest Region
Superfund Program
February 2009

PERCHLORATE

ClO_4^-





Perchlorate CHEMISTRY

Dissolves and Moves Like Salt in Water

Highly Soluble, Mobile, Stable

Hard to Treat by Usual Methods

Hard to Detect Below 400 ppb, until March 1997

Perchlorate USES

90% Manufactured for Solid Rocket Fuel

Explosives

Fireworks, Flares and Smoke Markers

Natural Sources – Atmospheric, Ozone layer
Accumulates in Arid Soil, Flushes with Rain
e.g., Nitrate Fertilizer from Desert in Chile

Perchlorate
Natural Sources

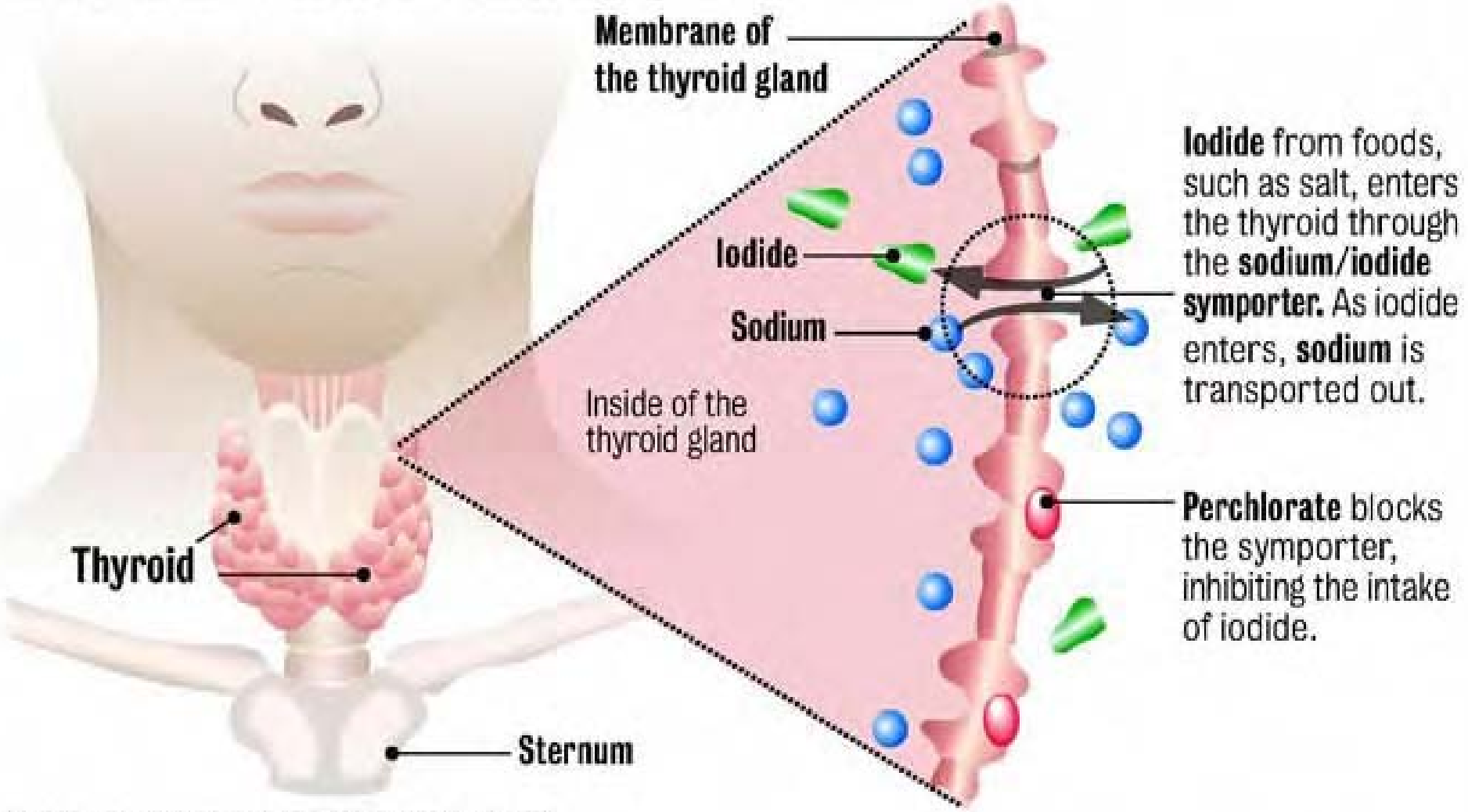
- **Most natural sources, accumulation limited to arid environments (Texas, Nevada, Oregon)**

- **Natural sources include**
  - **Chilean nitrate**
  - **Evaporite deposits**
  - **Atmospheric formation**

Perchlorate
HEALTH EFFECTS

- The principle effect of perchlorate is inhibition of iodide uptake by the thyroid.
- Iodide deficiency can affect maternal thyroid hormone production.
- Decreases in maternal thyroid hormone may increase the risk of neurodevelopmental impairment in the fetus.

PERCHLORATE: In the body, perchlorate interferes with the absorption of iodide by blocking iodide-transport receptors called "symporters. The thyroid uses iodide to make hormones essential to brain and nervous system development in fetuses and infants.



SOURCE: UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

THE PRESS-ENTERPRISE

Perchlorate
REGULATIONS

Currently NO Federal STANDARD

Massachusetts 2 ppb and California 6 ppb

Superfund Decisions using Risk Estimates,
Also considering State Advisory Levels

SDWA Statutory Requirements for MCL Regulatory Determination

SDWA requires EPA to publish a Maximum Contaminant Level Goal (MCLG) and promulgate a National Primary Drinking Water Regulation for a contaminant if the Administrator determines that:

- the contaminant may have an **adverse effect on the health** of persons;
- the contaminant is known to occur or there is substantial likelihood that the contaminant will **occur in public water systems** with a frequency and at levels of public health concern; and
- in the sole judgment of the Administrator, regulation of such contaminant presents a **meaningful opportunity for health risk reduction** for persons served by public water systems.

Perchlorate
HISTORY - 2005

National Academy of Science (NAS)
Review begun 2003, Report January 2005

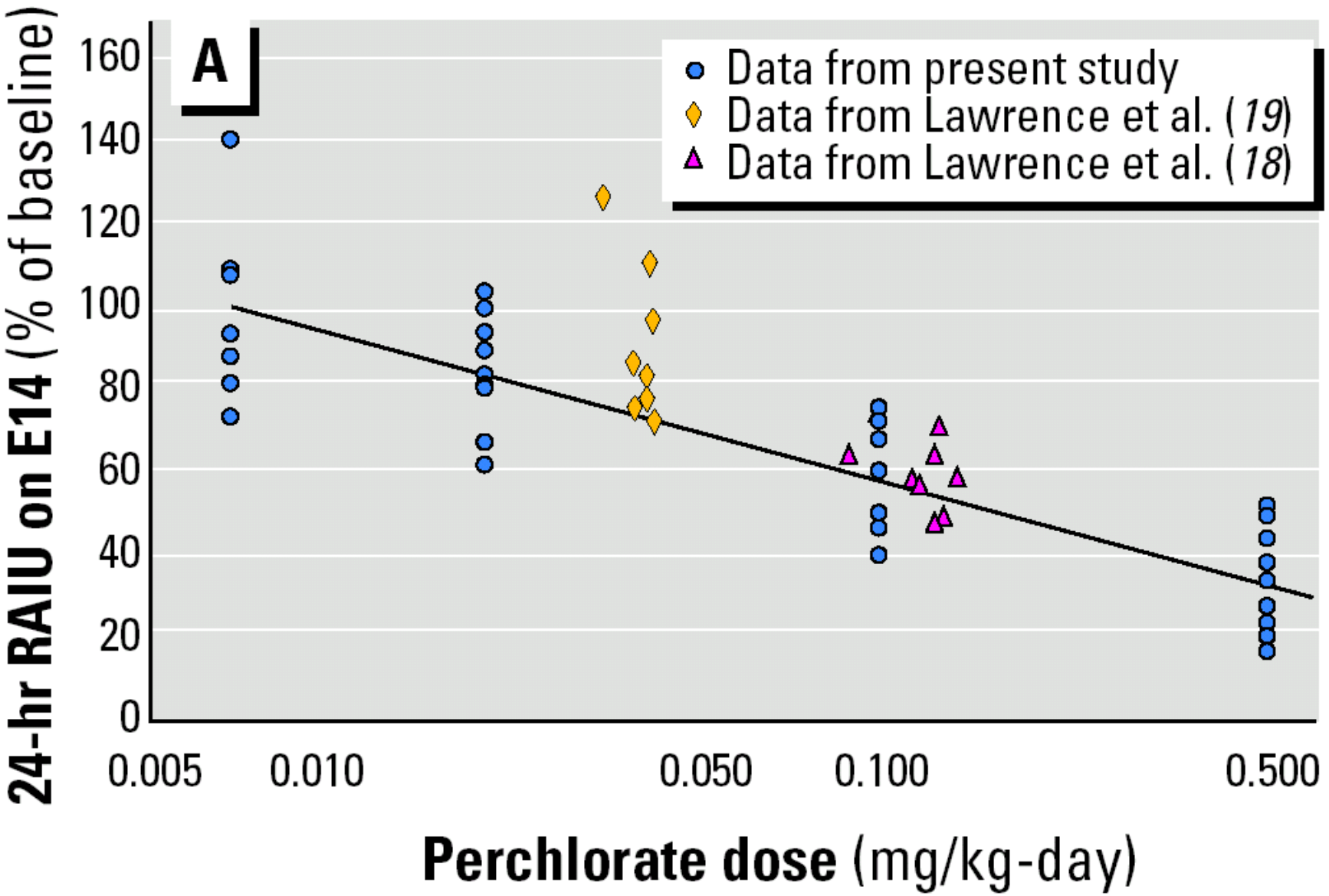
Short term, Iodide Uptake Inhibition
Human Subjects (Healthy Adult Study)
Sensitive Subpopulations – 10x Uncert. Factor

No Effect Level 0.007 mg/kg-day
RfD = 0.0007 mg/kg-day

Drinking Water Equivalent = 24.5 ppb

IRIS - EPA's Integrated Risk Information System

Human Clinical Data (Greer et al., 2002)



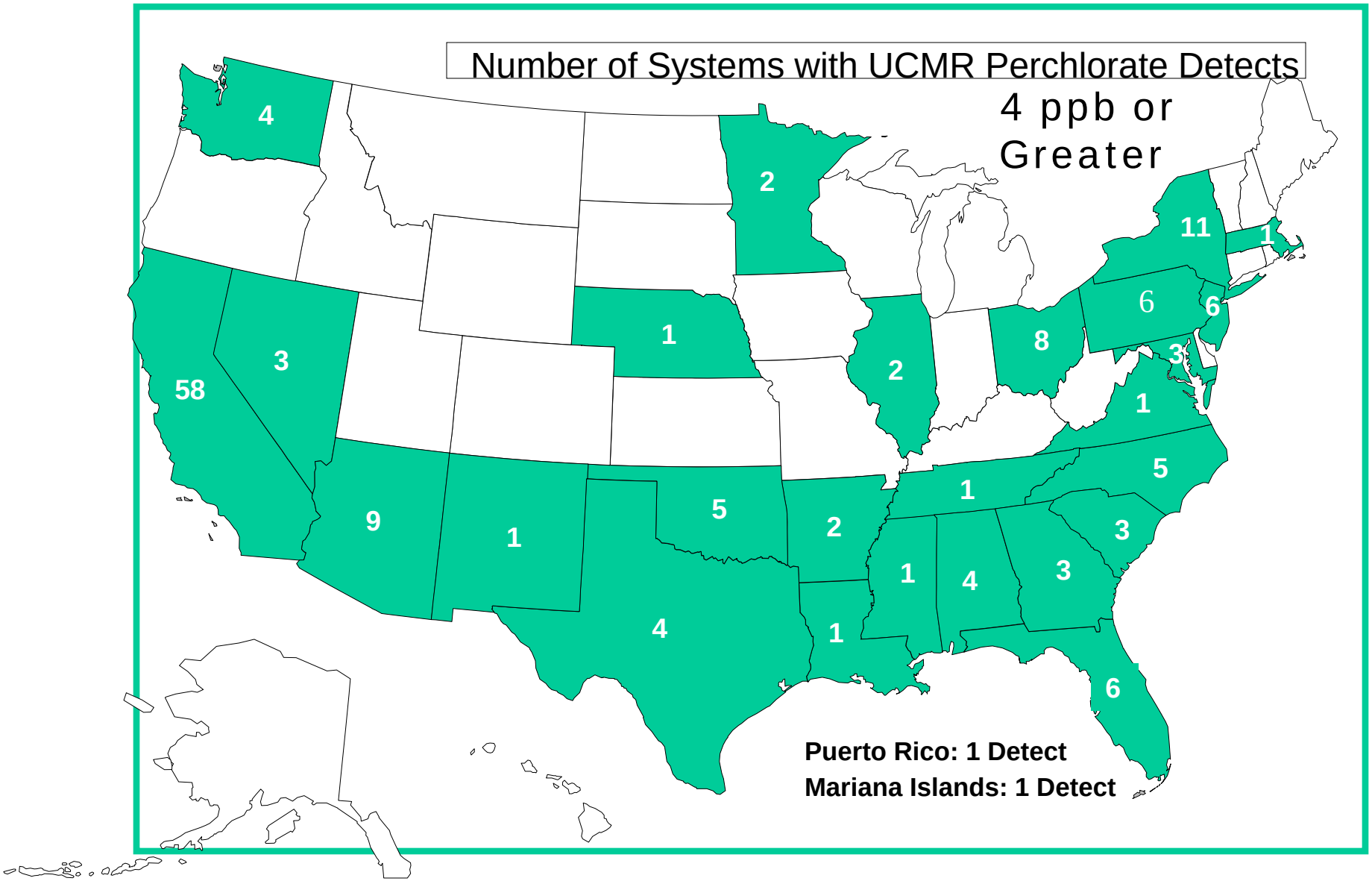
Perchlorate Health Effects and EPA

- In February, 2005, EPA established a final RfD of 0.0007 mg/kg per day in IRIS, consistent with NAS.
- NAS identified the most sensitive populations: fetuses of iodine-deficient pregnant women and individuals affected by one of several hypothyroid conditions.
- EPA announced a preliminary Health Reference Level 15 ppb in October, 2008. Non-Drinking Water source estimated ~40%

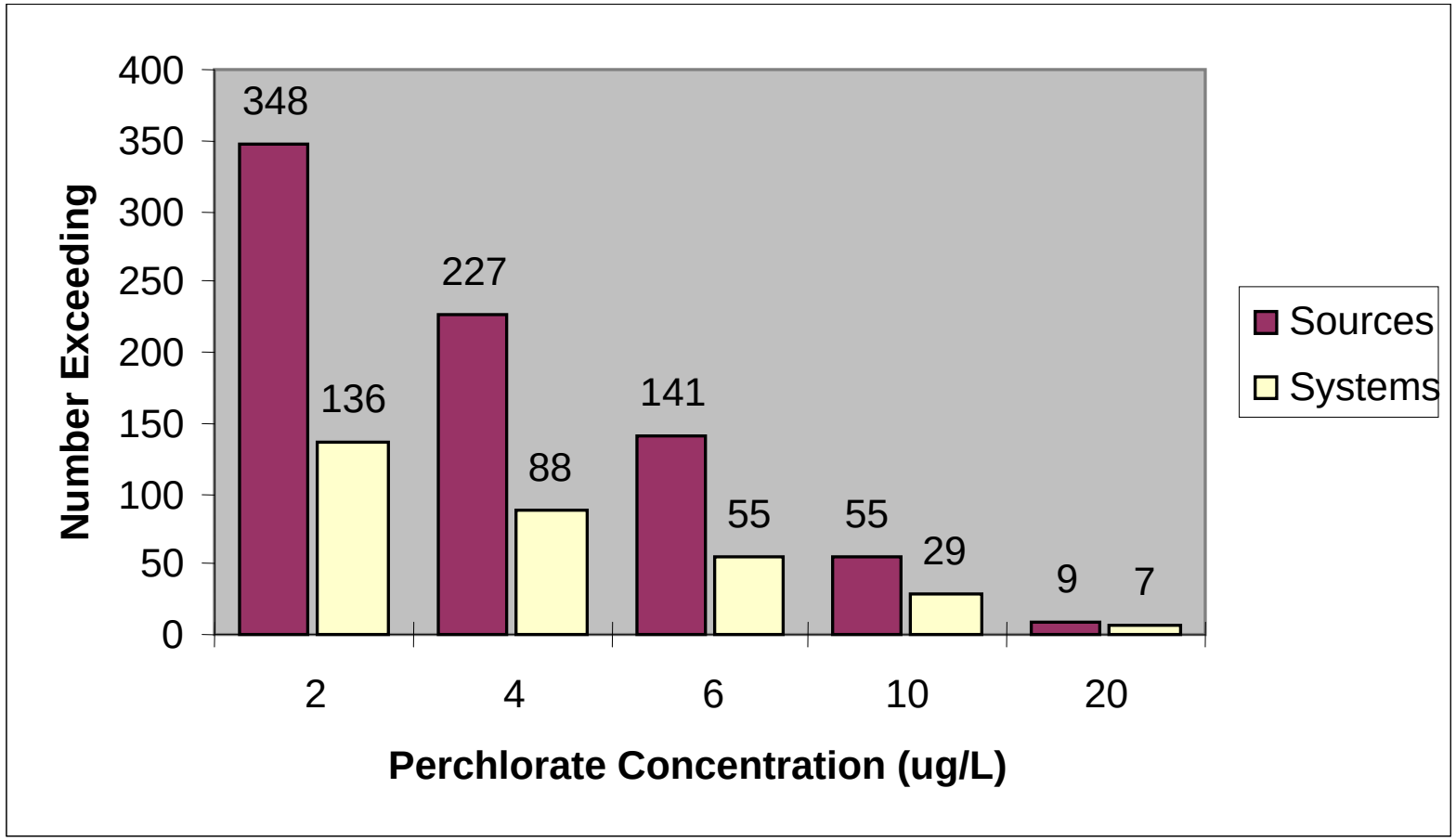
Primary Routes of Perchlorate Exposure to Humans

- Drinking water
  - Public water systems
  - Private wells
- Food
  - Leafy vegetables
  - Milk
  - Many other food products
- US Food and Drug Admin. (FDA) data
- Analytica Chimica Acta, 2006

2001-3 Detections in Drinking Water



August 2004 UCMR Data



Analysis by Dr. Phil Brandhuber, HDR, for AWWA

In 1997, 900 pounds per day entered Lake Mead

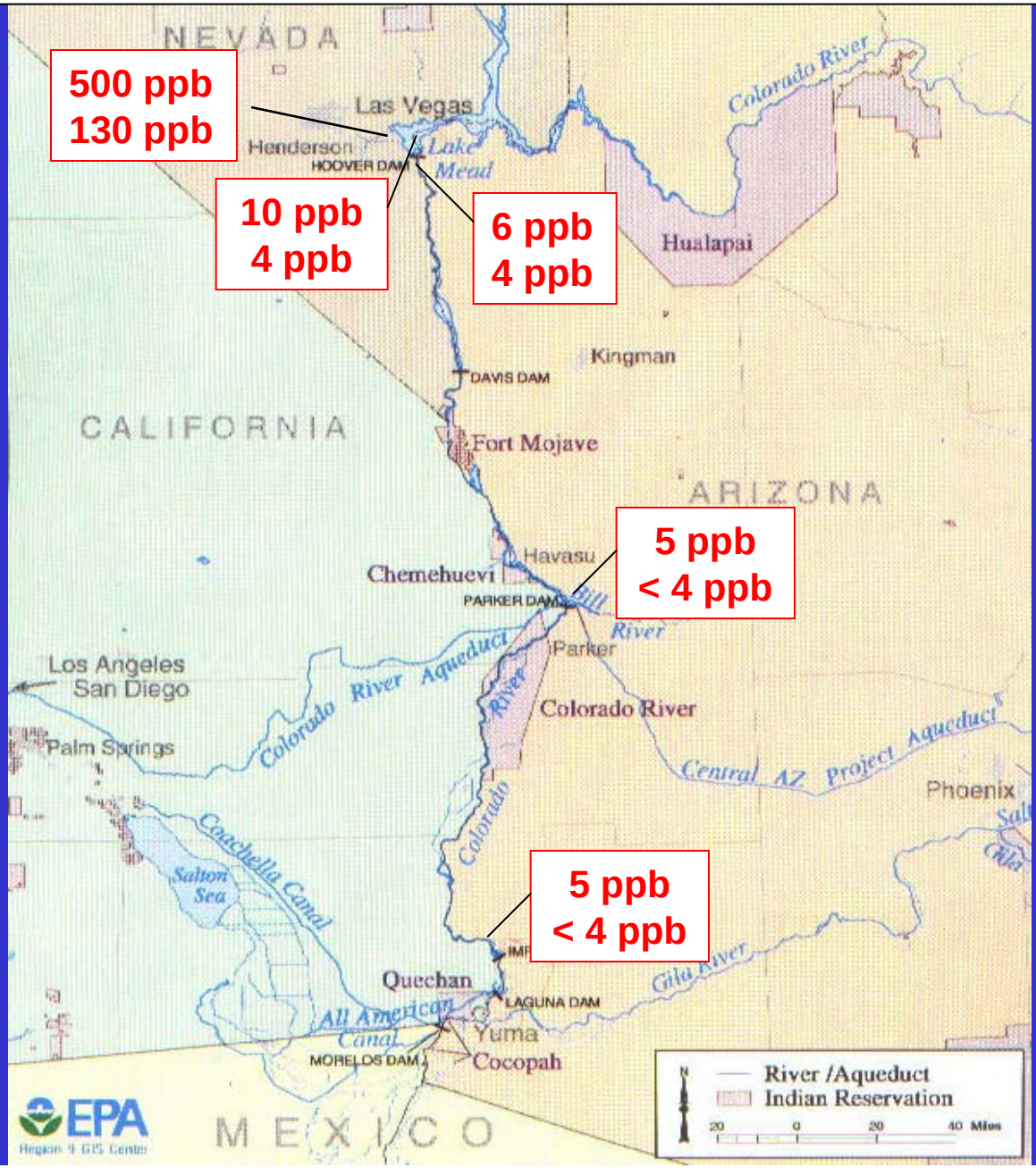
By 2006, about 120 pounds per day

Measurable entire 300 miles to Mexico

Used by Las Vegas Los Angeles, San Diego, Phoenix and agriculture

Water supply for over 15 million people

Lower Colorado River
2002 and 2005 Average Perchlorate Concentration



October 2008
Preliminary Determination

EPA has found that perchlorate, at sufficiently high doses, may have an adverse effect on the health of persons, and that perchlorate is found in a small percentage of public water supply systems. However, EPA has determined that regulation of perchlorate in drinking water systems **does not present a meaningful opportunity to reduce health risk for persons served by public water systems**.

January 2009
Interim Health Advisory

EPA issued an interim health advisory of 15 parts per billion (ppb) to assist state and local officials in addressing local contamination of perchlorate in drinking water and making a corresponding change to the factors it considers in cleaning up Superfund sites.

EPA encourages state-specific situations to be addressed at the local level.

Next Steps -January 8, 2009

- EPA is seeking advice from the National Academy of Sciences (NAS) before making a final determination on whether to issue a national regulation for perchlorate in drinking water. EPA expects to issue a final health advisory concurrent with the final regulatory determination for perchlorate.
- Specifically, EPA is asking the NAS to evaluate its derivation of the Health Reference Level of 15 ppb, the use of modeling to evaluate impacts on infants and young children, and the implication of recent biomonitoring studies.

PERCHLORATE

ClO_4^-