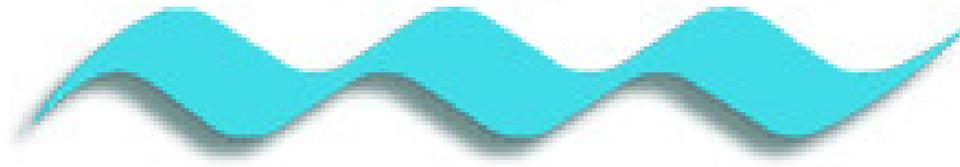


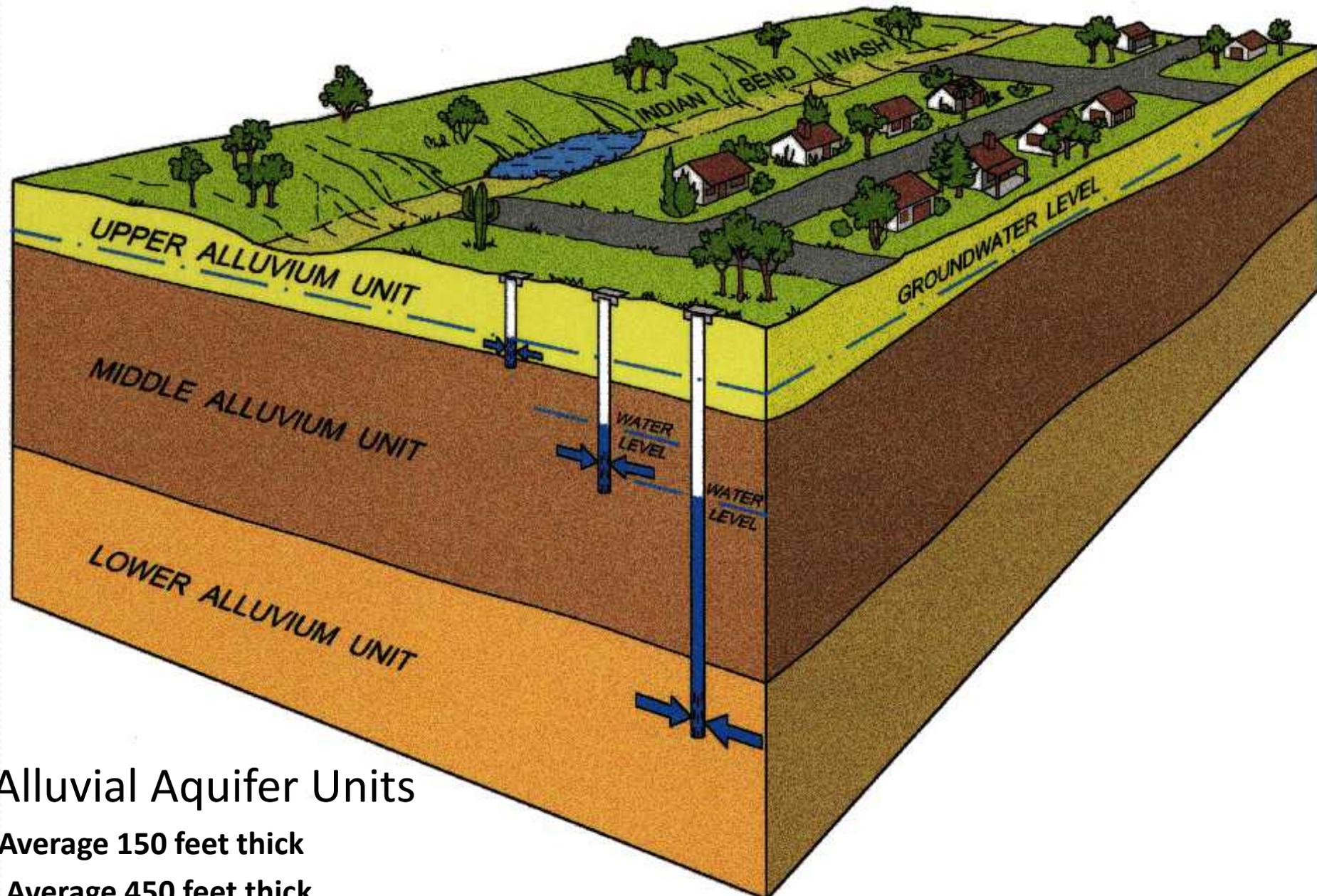
North Indian Bend Wash Superfund Site



Review of Groundwater Data and Modeling

CIG Meeting
February 9, 2011

NIBW OVERVIEW



Three Alluvial Aquifer Units

- UAU – Average 150 feet thick
- MAU – Average 450 feet thick
- LAU – >700 feet thick

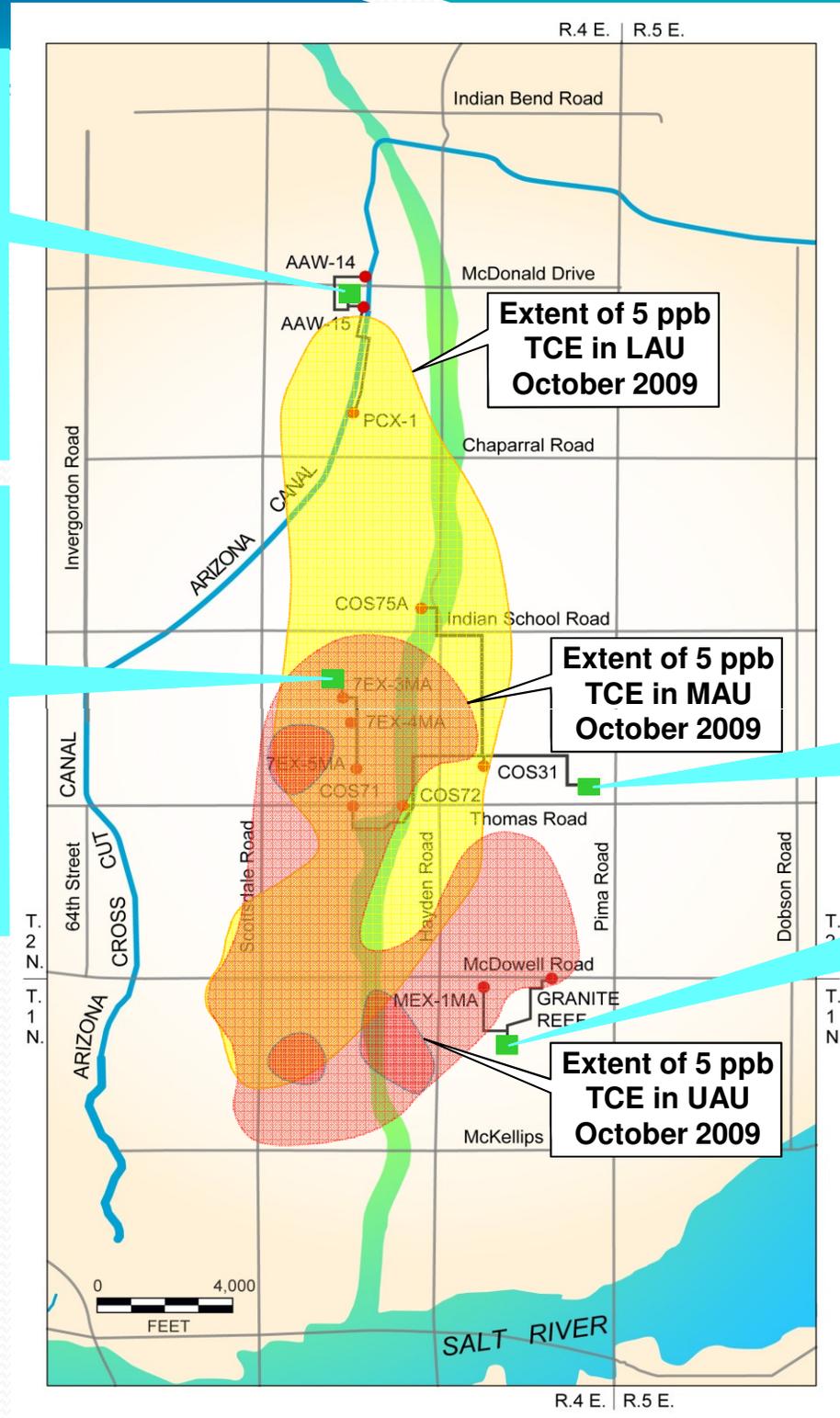




Miller Road Treatment Facility



Area 7 Groundwater Extraction and Treatment System



Extent of 5 ppb TCE in LAU October 2009

Extent of 5 ppb TCE in MAU October 2009

Extent of 5 ppb TCE in UAU October 2009



Central Groundwater Treatment Facility



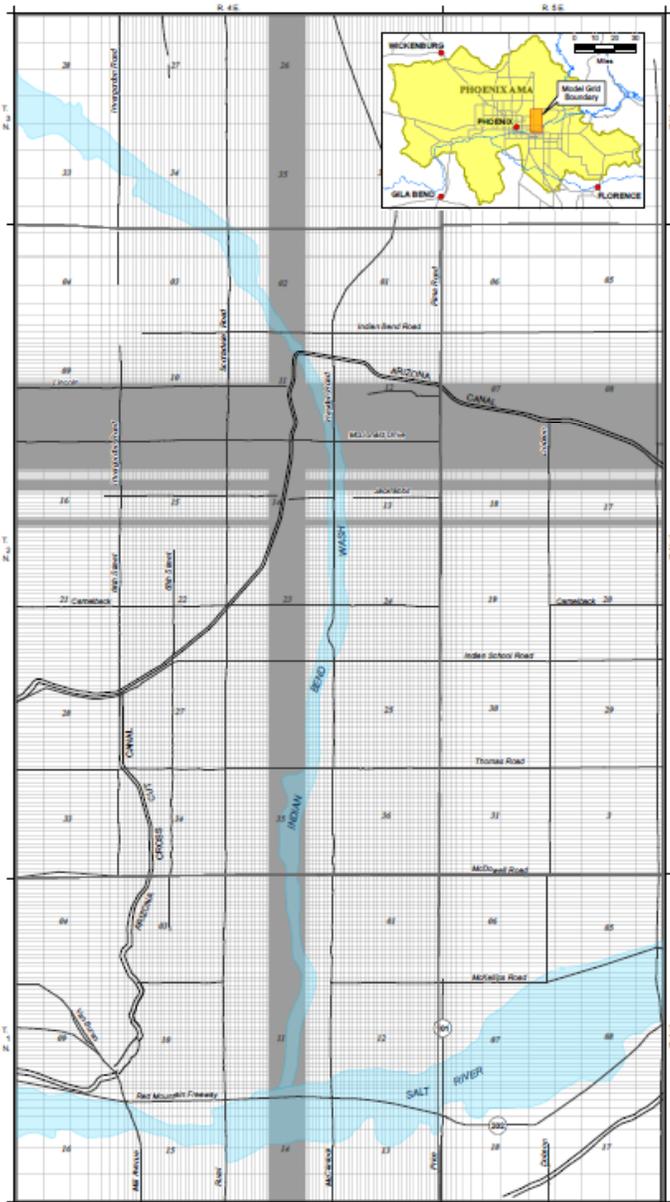
Area 12 Groundwater Extraction and Treatment System

TECHNICAL REVIEW – SITE DATA

- Use water level and water quality data to assess effectiveness of remedial actions and achievement of RAOs
- Technical RAOs
 - Containment – maintain hydraulic control and draw plumes to wells tied into treatment
 - Restoration – reduce VOC concentrations over time to below drinking water standards



TECHNICAL REVIEW – GROUNDWATER FLOW MODEL



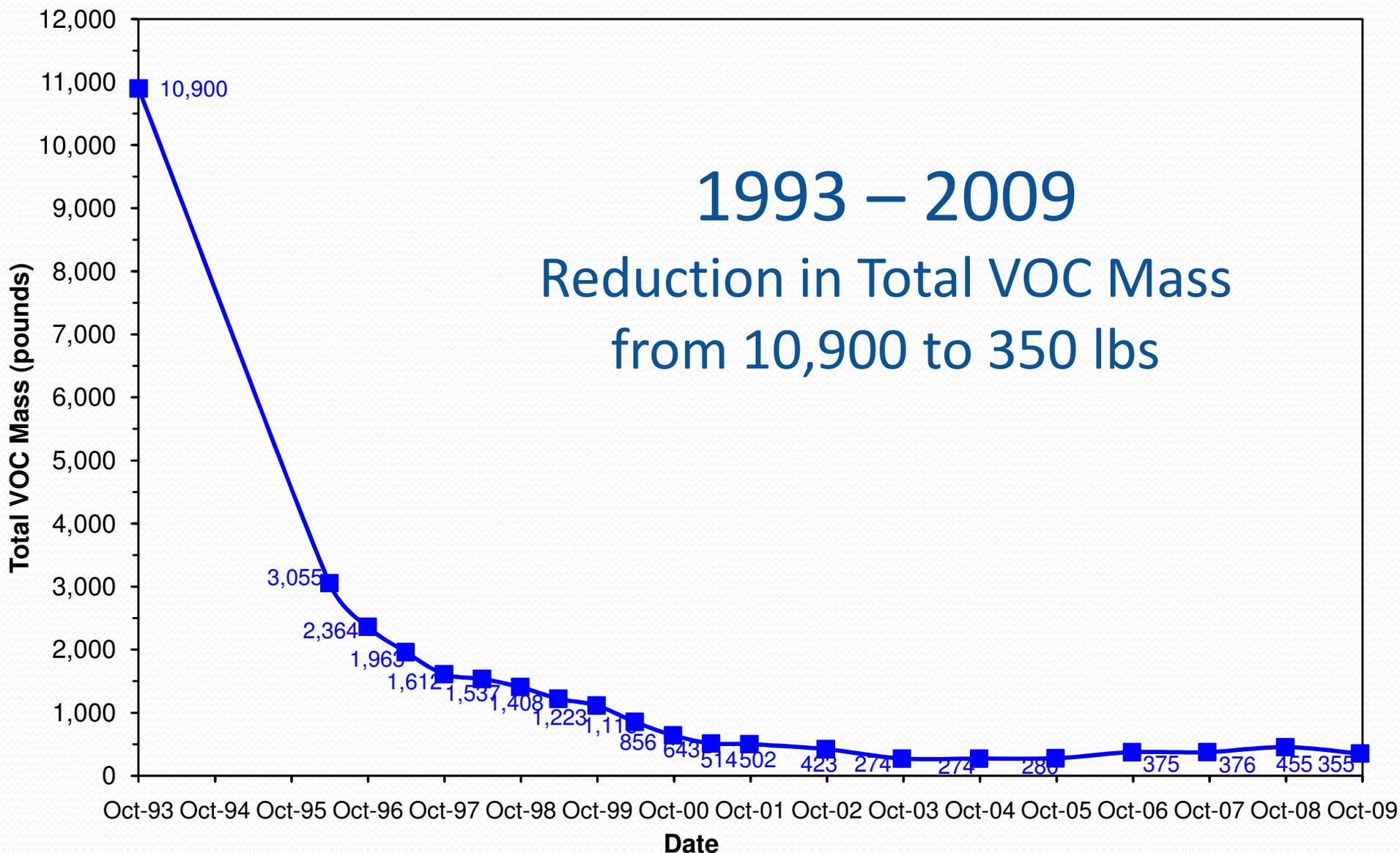
- Use site data to develop and update FSA model
- Calibrate model to simulate observed responses and trends
- Use model to...
 - Evaluate plume containment
 - Estimate aquifer restoration timeframes



UAU Objectives

- Mitigate sources in soils
- Allow remaining mass to migrate into LAU for treatment

TOTAL VOC MASS IN UAU



UAU REMEDY PROGRESS

- Vadose zone clean up generally complete
- Reduction in VOC mass of about 97% in UAU groundwater
- Effective migration of remainder of mass into LAU for treatment in accordance with selected remedy
- Significant concentration reductions and progress toward restoration

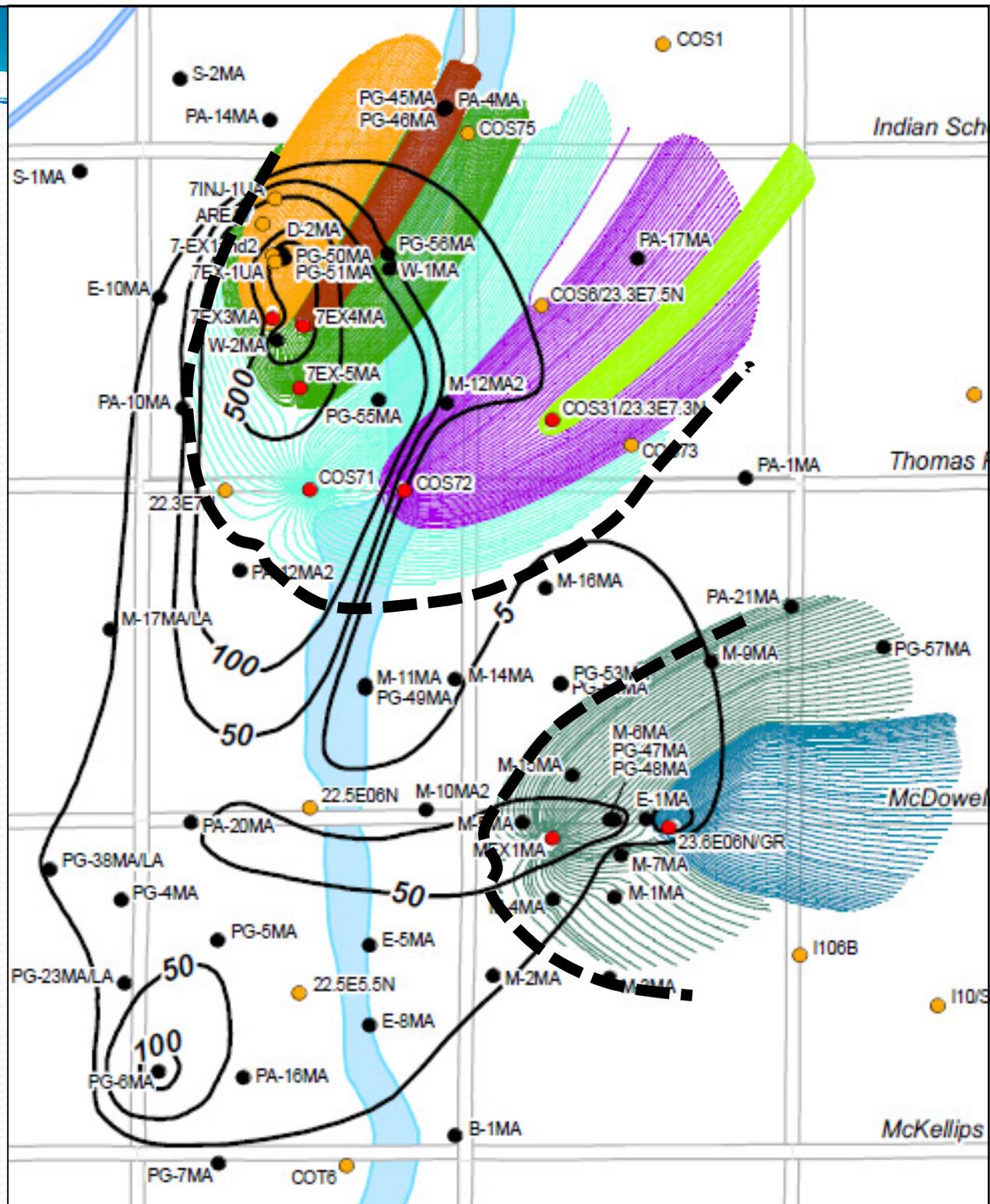


MAU Objectives

- Contain, extract, and treat higher concentration areas (Area 7 and Area 12)
- Allow remaining mass to migrate into LAU for treatment

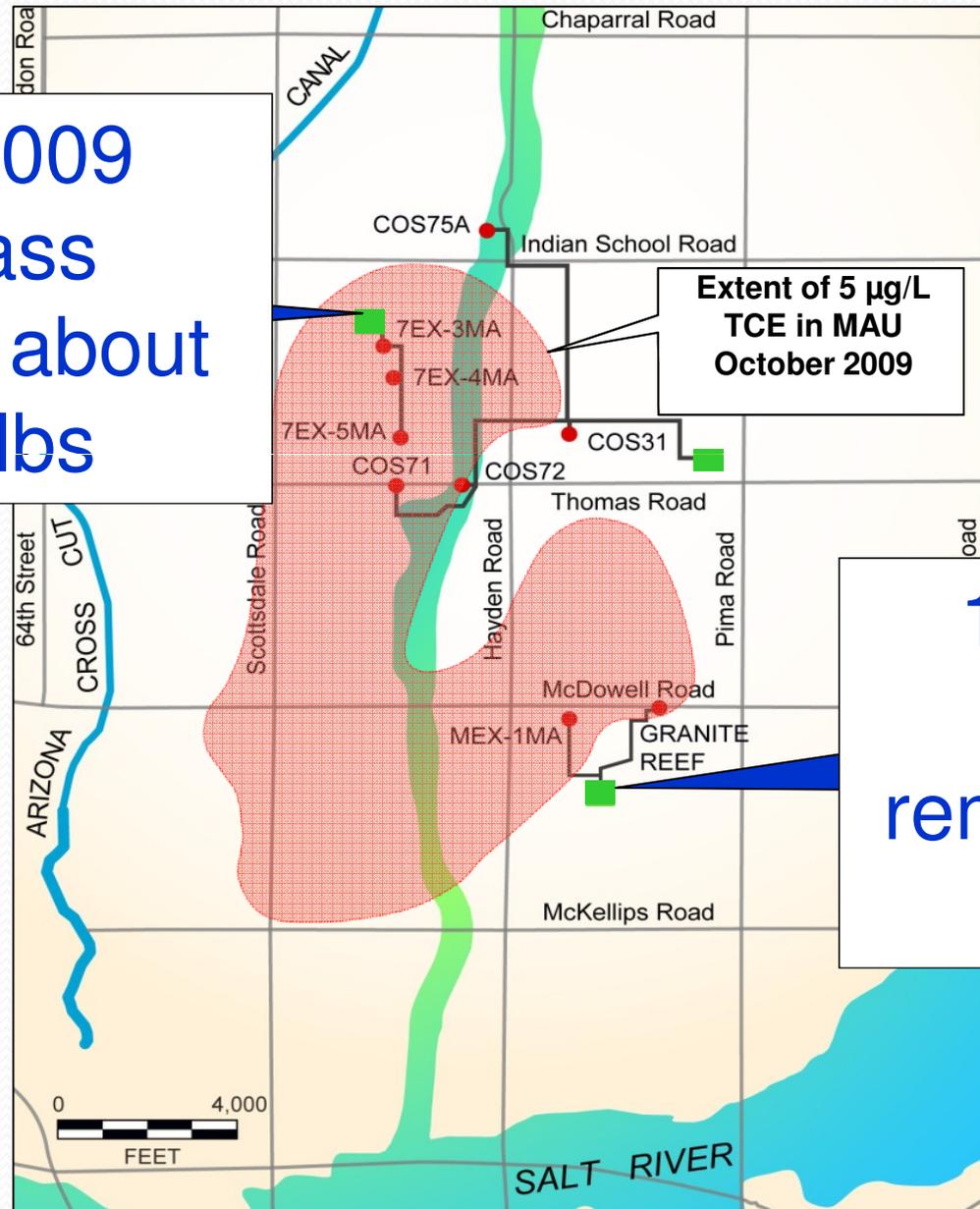
MODEL-PROJECTED MAU CAPTURE

Model projects containment of Area 7 and Area 12 higher concentration areas



MAU SOURCE CONTROL – MASS REMOVAL

1999 – 2009
TCE mass
removal of about
14,000 lbs



Extent of 5 µg/L
TCE in MAU
October 2009

1999 – 2009
TCE mass
removal of about
4,400 lbs

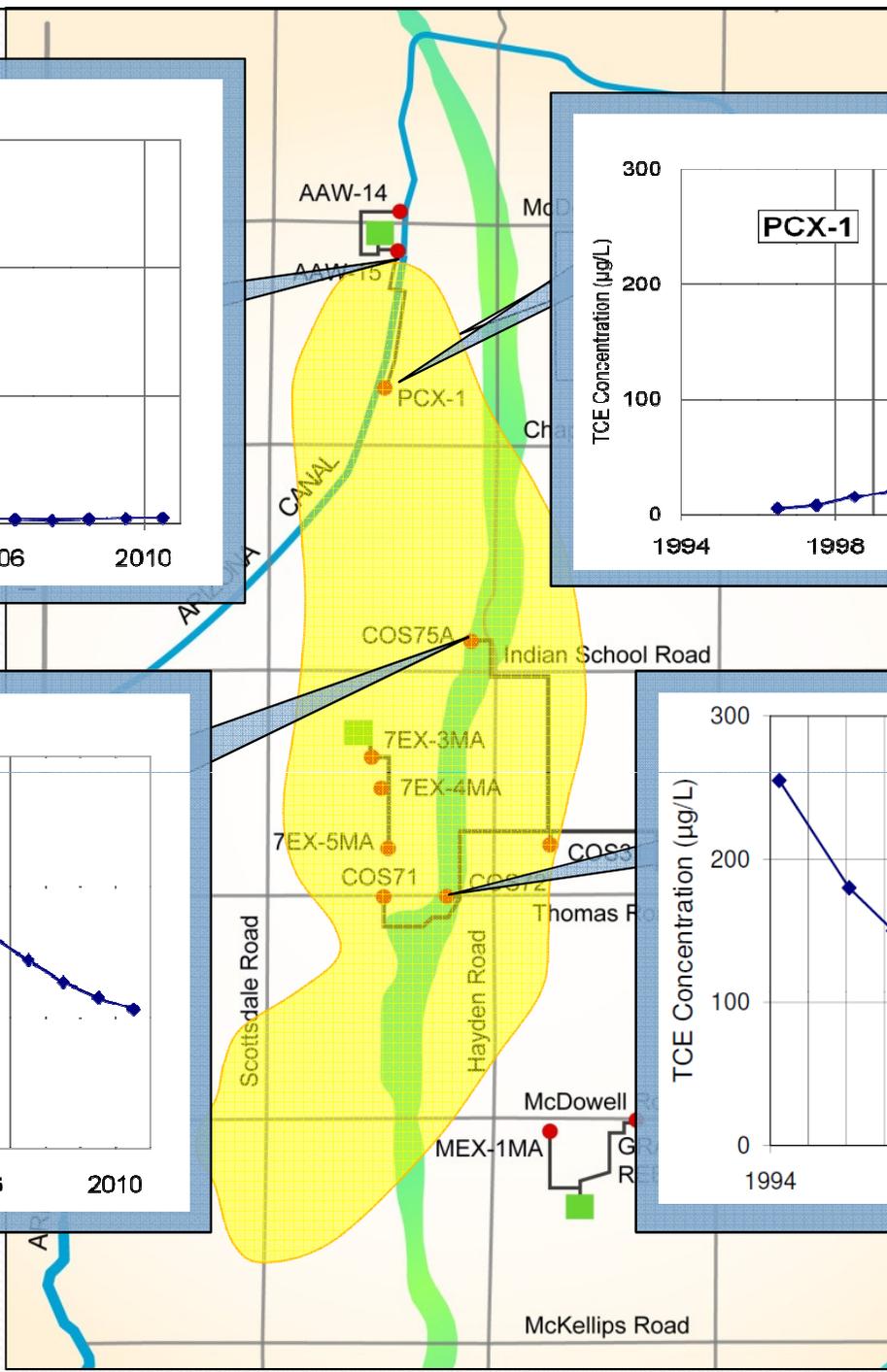
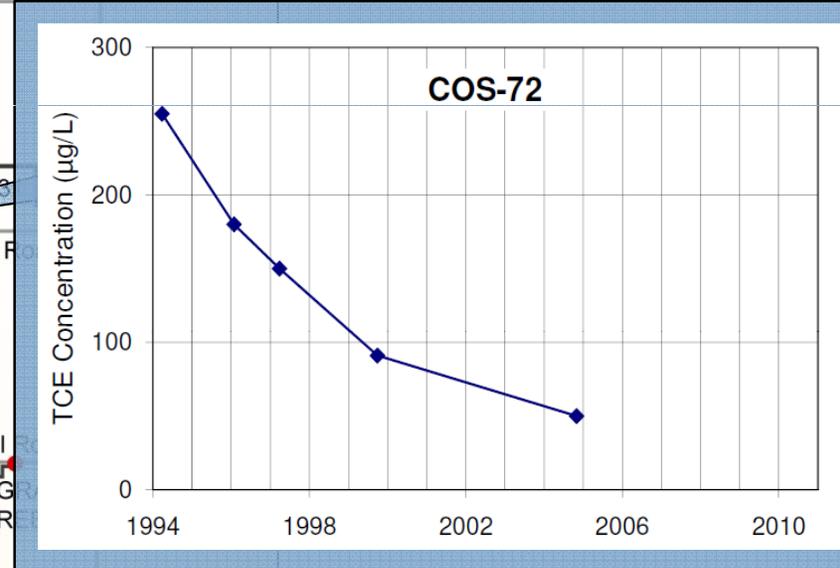
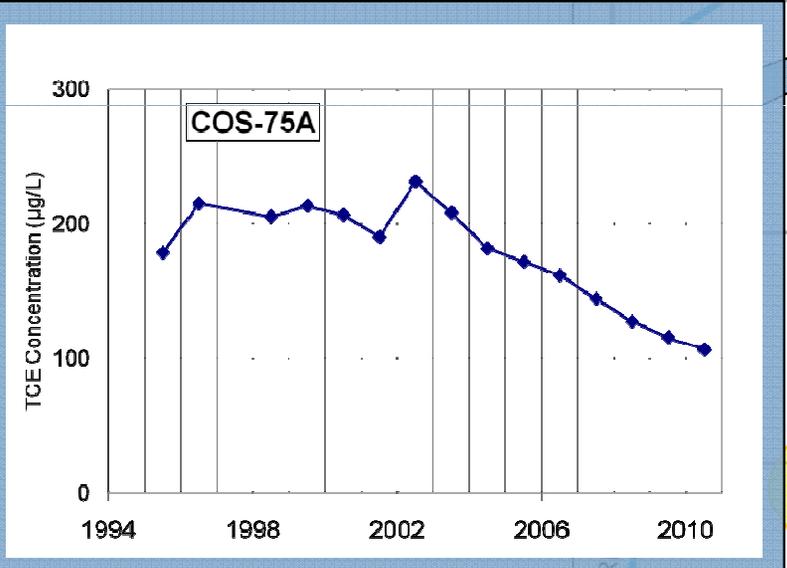
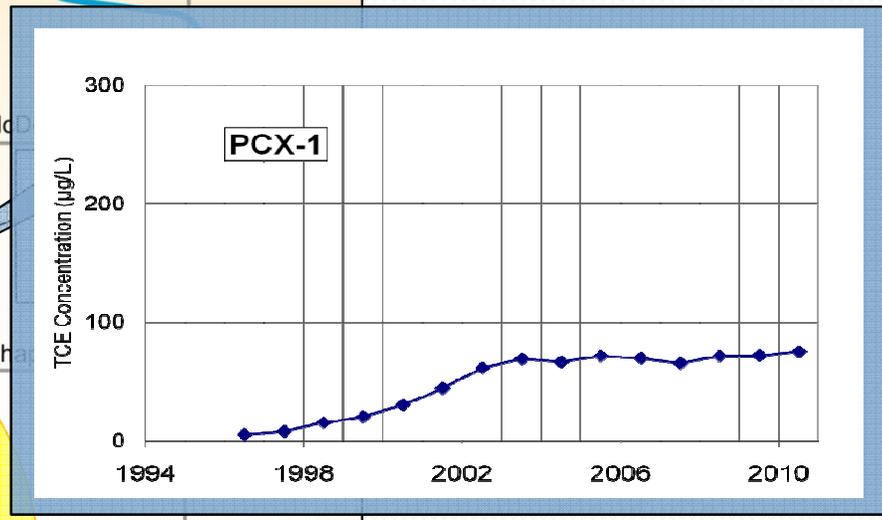
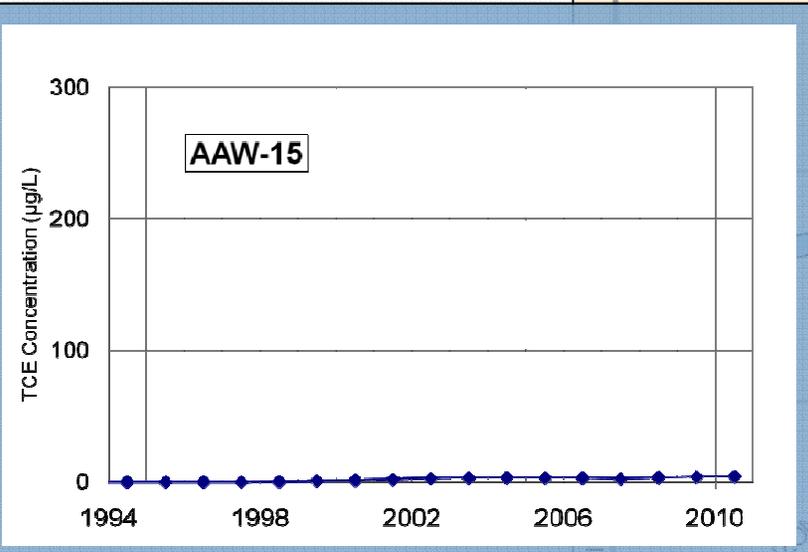
MAU SOURCE CONTROL EFFECTIVENESS

- Water level data and model: hydraulic containment of higher concentration areas
- VOC concentration data: significant decreases at monitor and extraction wells
- Source control programs: combined TCE mass removal of almost 20,000 lbs



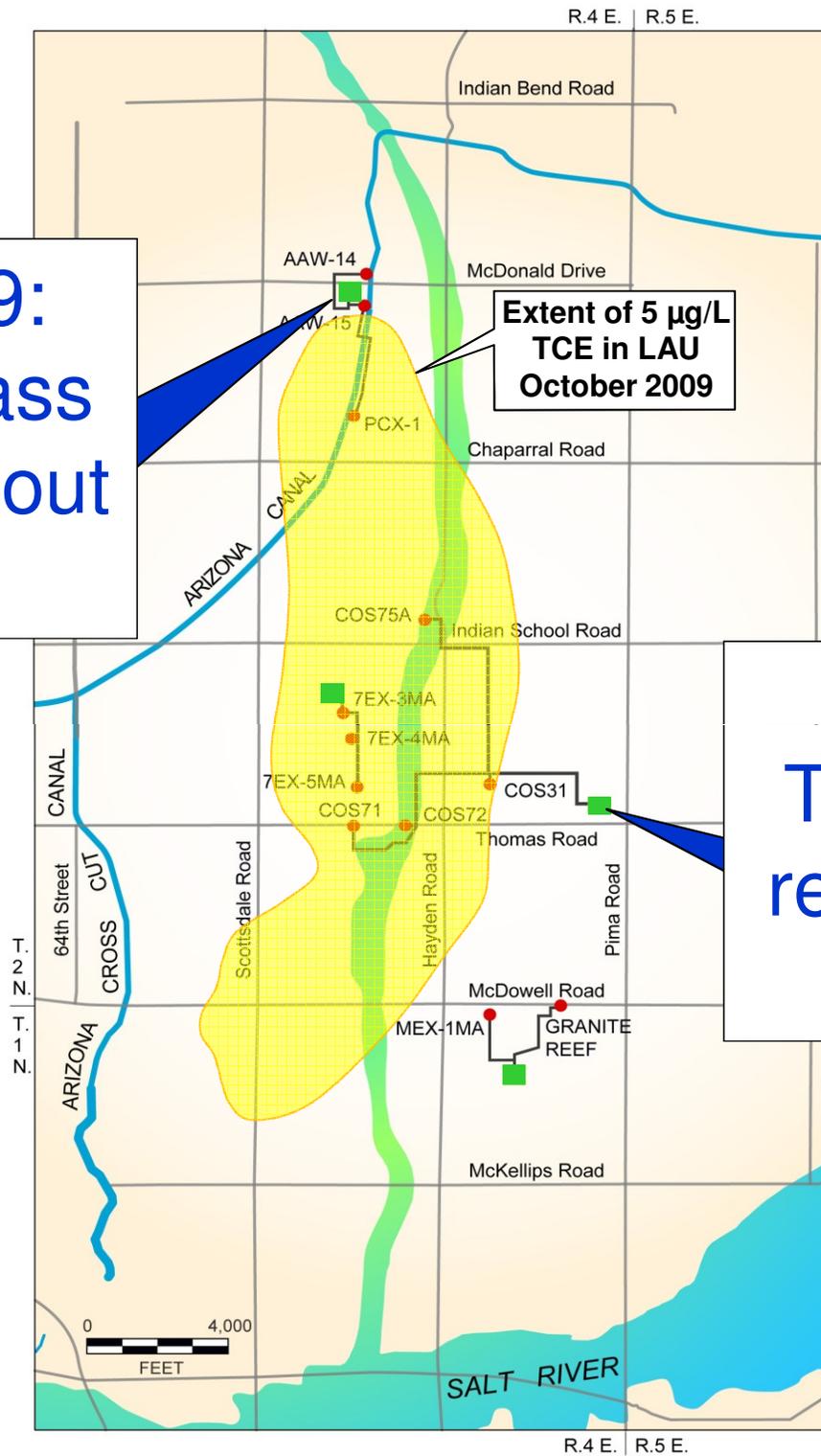
LAU Objectives

- Contain TCE plume
- Prevent migration to wells not tied into treatment



TCE IN LAU EXTRACTION WELLS

1998 – 2009:
Total TCE mass
removal of about
5,600 lbs



Extent of 5 µg/L
TCE in LAU
October 2009

1996 – 2009:
Total TCE mass
removal of about
37,000 lbs

MAU/LAU GROUNDWATER REMEDY EFFECTIVENESS

- Water level data and model: hydraulic containment of LAU plume
- Water quality data: significant progress toward aquifer restoration
- Extraction well data: removal of about 43,000 lbs of TCE from CGTF and MRTF since 1996



PROJECTED CLEANUP TIMES

- Requested by EPA for 5-Year Review
- Approach recommended by EPA
 - Quantitative analysis for UAU and LAU using flow model
 - Qualitative assessment for MAU
- Projected cleanup...
 - UAU ~10 years
 - LAU ~40 to 70 years
- MAU – substantial progress toward cleanup expected during 40 to 70 year timeframe for LAU



CONCLUSIONS

- Vadose zone and UAU groundwater remediation nearly complete
- TCE concentrations and mass in groundwater in all aquifer units substantially reduced
- MAU sources controlled
- LAU plume hydraulically contained
- Site remedies achieving RAOs
- Substantial mass removal and progress towards groundwater restoration

Questions?

www.motorolasolutions.com/NIBW

