



Western Riverside AQMD Town Hall Meeting

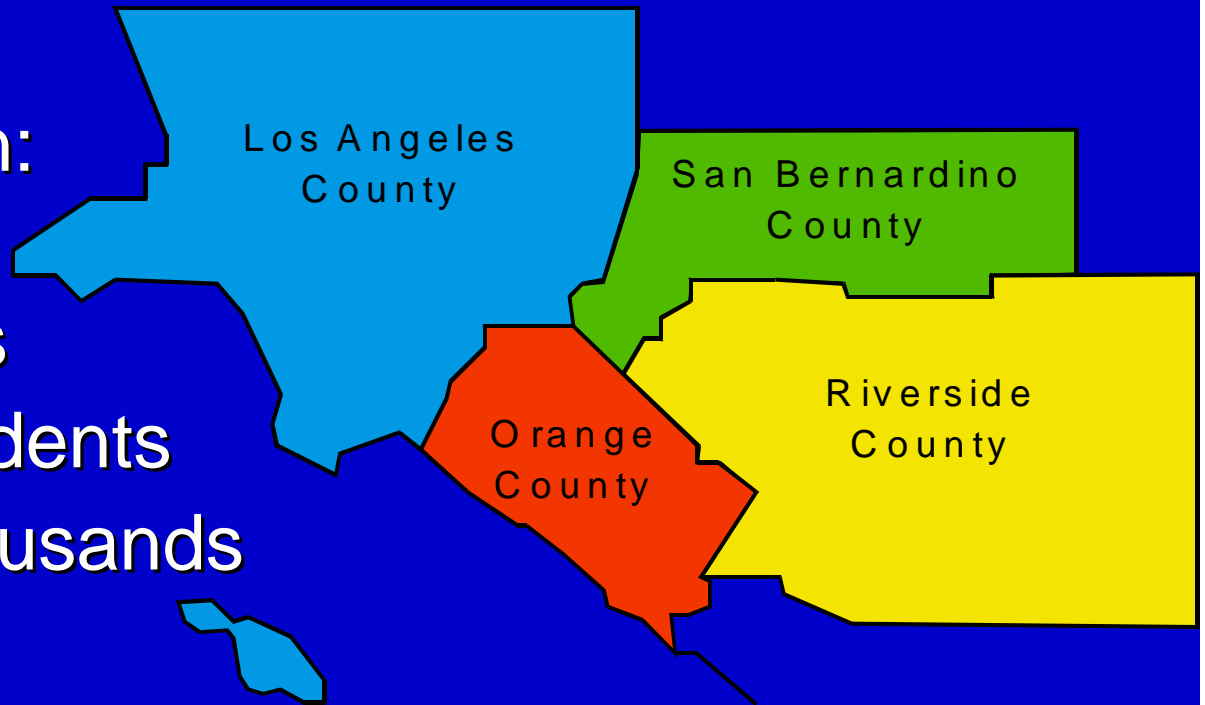
April 21, 2008

**Barry Wallerstein, D.Env.
Executive Officer
South Coast Air Quality Management District**

SCAQMD Background

South Coast Basin:

- 4-county region
- 11,000 sq. miles
- 16½ million residents
- Hundreds of thousands diesel vehicles
- Millions of gasoline vehicles
- Combined Ports of Long Beach and Los Angeles = nation's largest cargo gateway



Key Air Pollutants

Historic

- Smog (Ozone)
- Fine Particulate (PM2.5)
- Air Toxics (Carcinogens)

Emerging

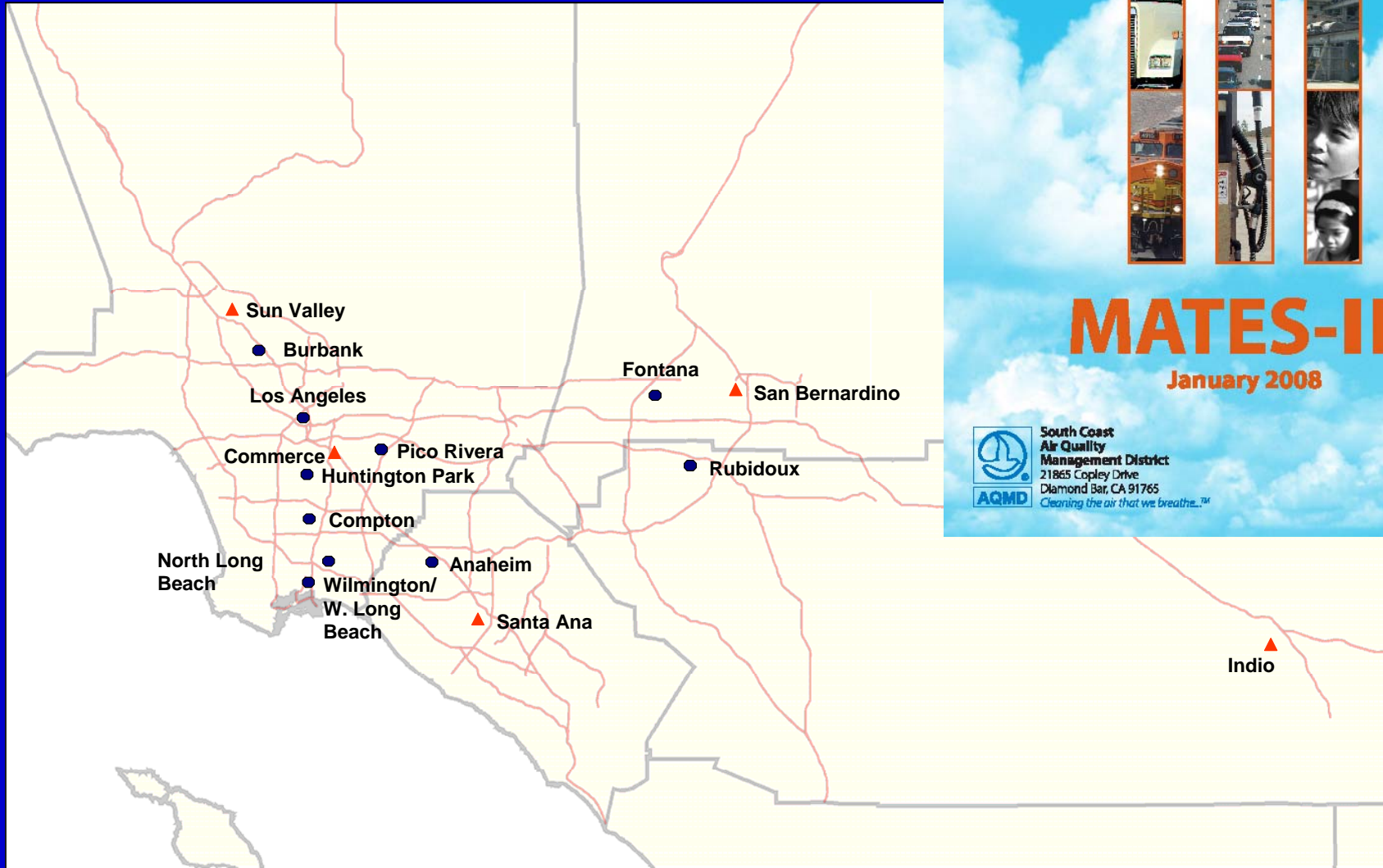
- Climate Change (Greenhouse Gases)

New Emission Reductions Needed

- CA Carbon Reduction Goals (from 1990)
 - ↓17% by 2020
 - ↓80% by 2050
- 24-Hour PM_{2.5} / 8-Hr. Ozone Standards
 - ↓70% NO_x
- New 8-Hour Ozone Standard
 - ↓90% NO_x

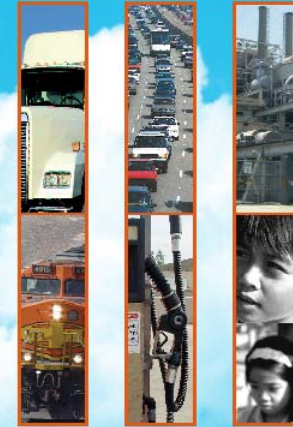
Airborne Hexavalent Chromium in the Western Riverside Area

Multiple Air Toxics Exposure Study - III



● Fixed Sites ▲ Temporary Sites

DRAFT REPORT
Multiple Air Toxics Exposure Study
In the South Coast Air Basin



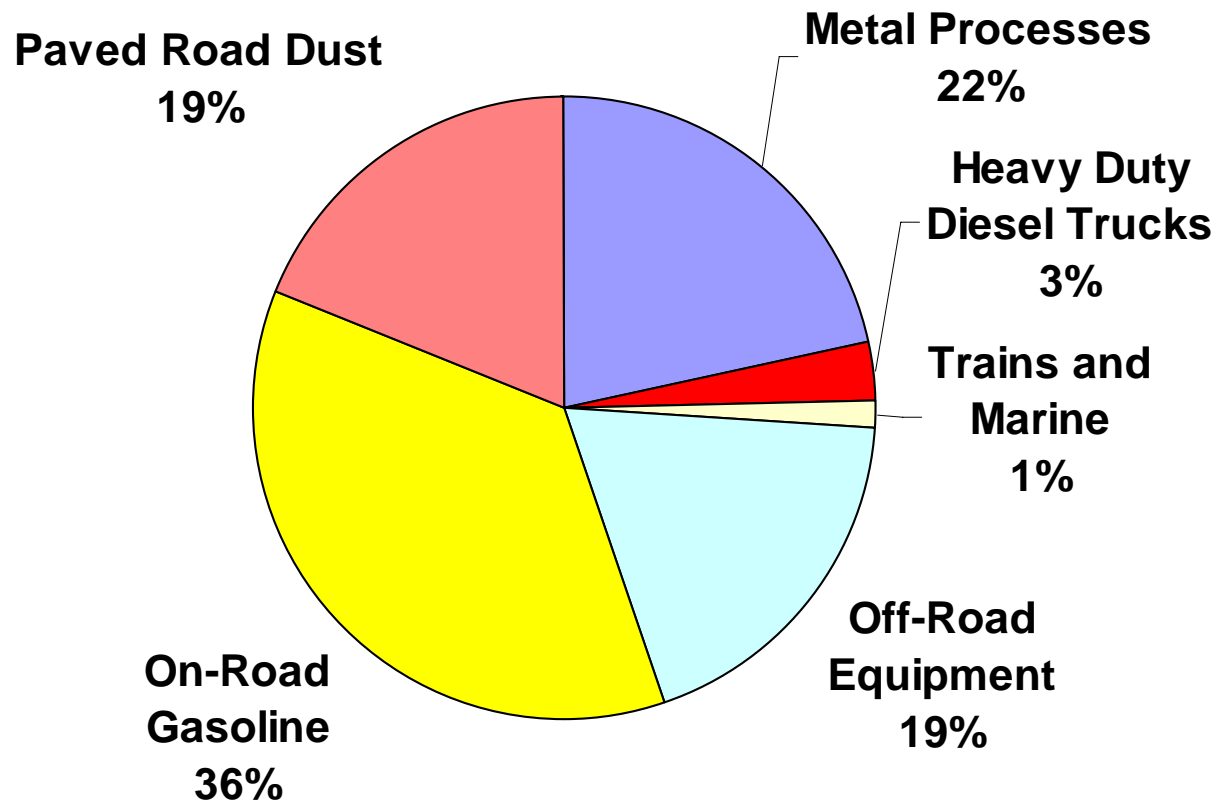
MATES-III

January 2008



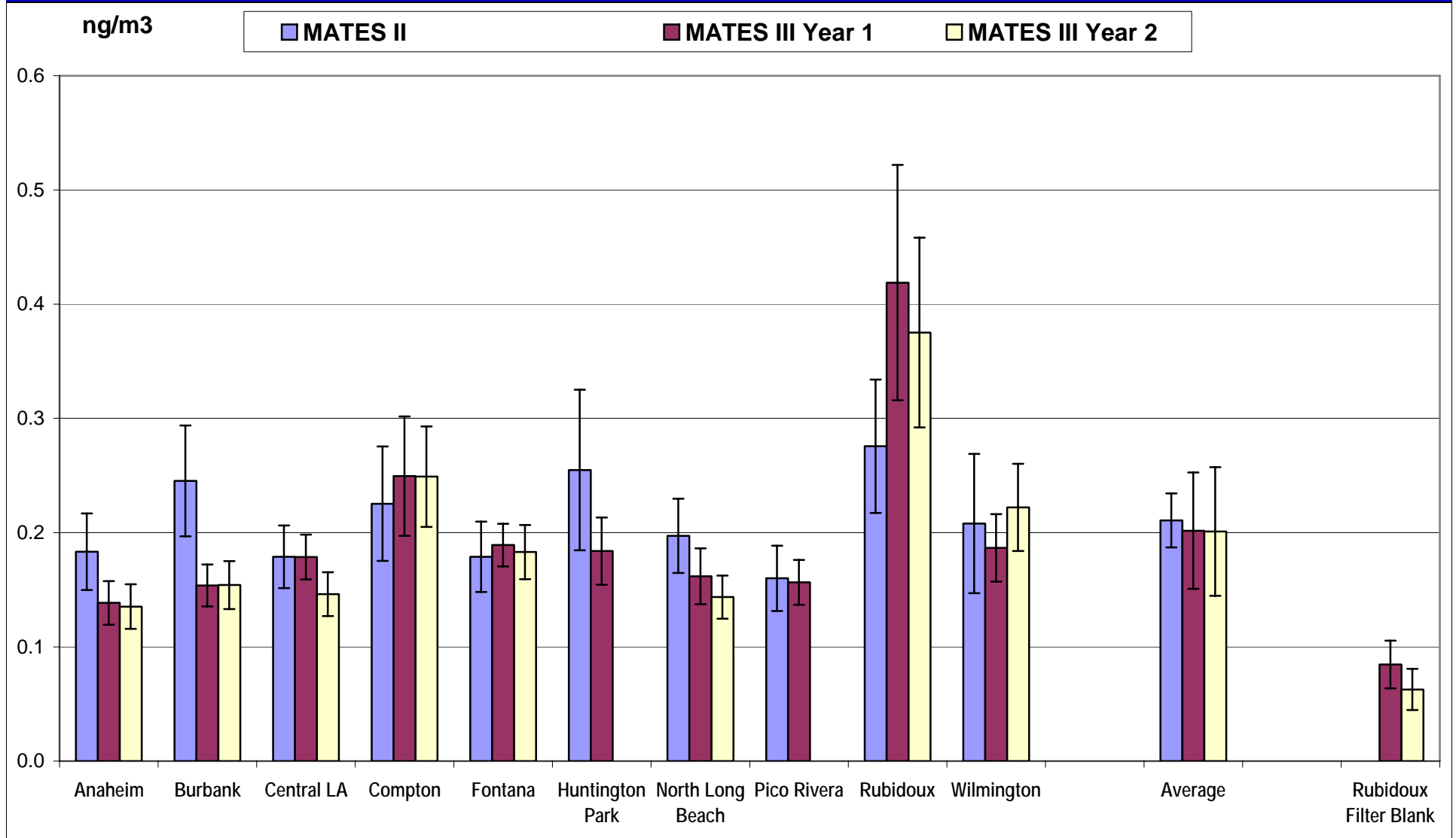
South Coast
Air Quality
Management District
21865 Copley Drive
Diamond Bar, CA 91765
Cleaning the air that we breathe.™

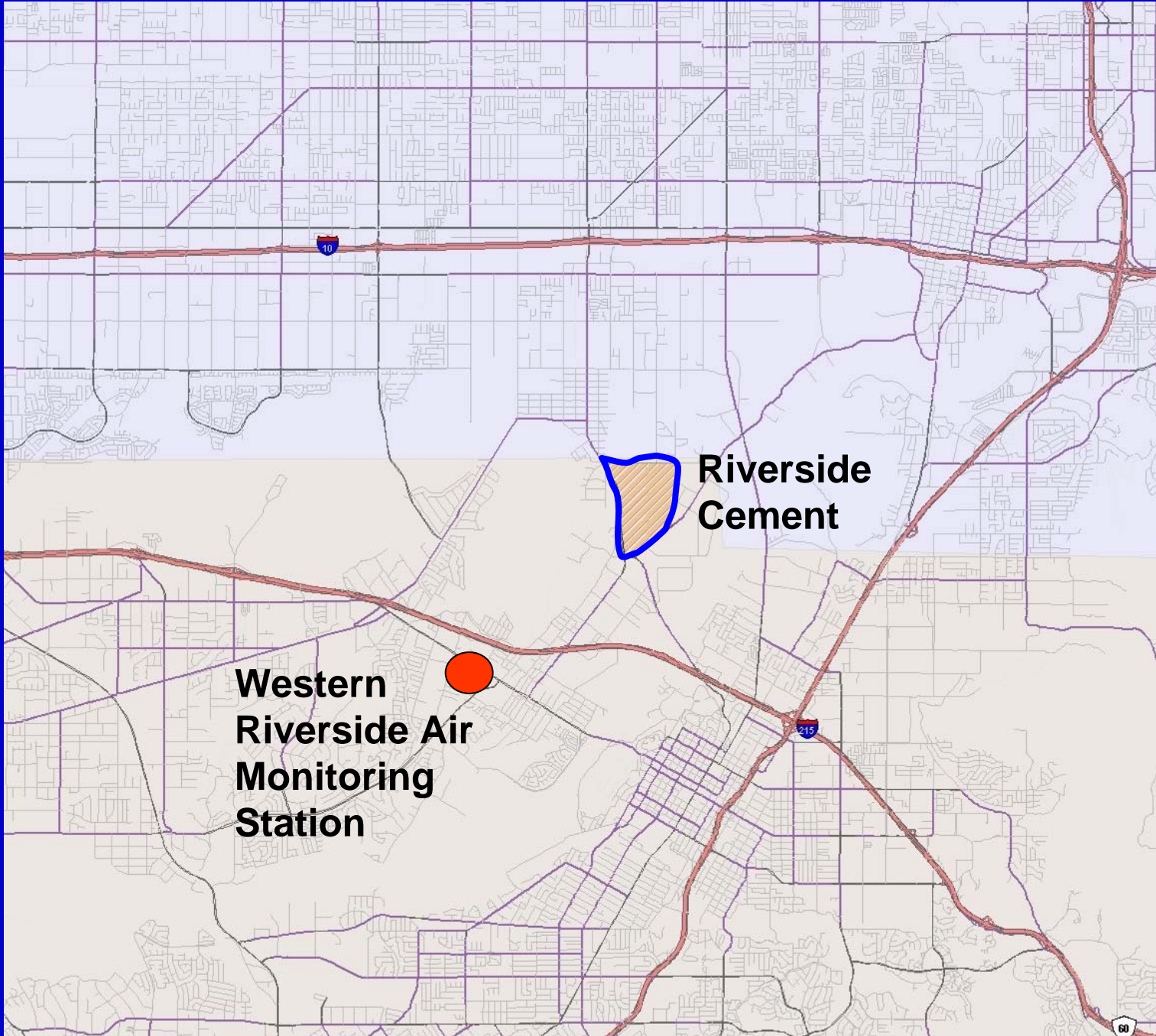
2005 Hexavalent Chromium Emissions in the South Coast Air Basin



Hexavalent Chromium

MATES-III





**Riverside
Cement**

**Western
Riverside Air
Monitoring
Station**

Initial Actions

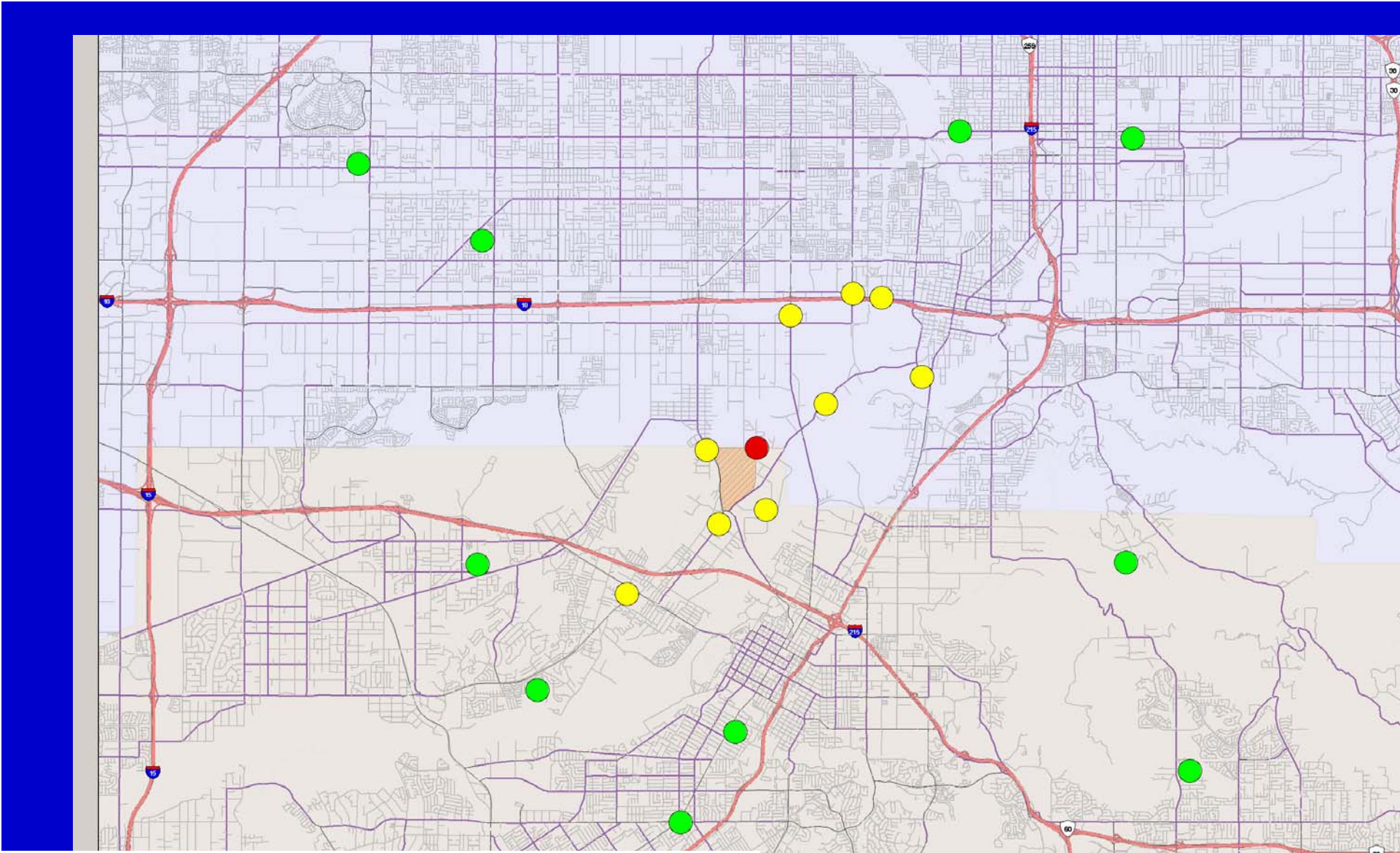
- Examined permit records and surveyed area for potential hexavalent chromium sources
- No major hexavalent chromium sources found
- Reports and literature did NOT indicate that emissions of hexavalent chromium from cement facilities were significant

Wind Analysis at Western Riverside Monitoring Station

- Most frequent wind direction is from the West
- However, higher levels of hexavalent chromium are measured when wind blows from the Northeast
- The cement production facilities are located over two miles to the Northeast

Deposition Plate Deployment

- Glass plates placed to collect falling particles
- A good survey tool for covering a wide area
- Not used for determining true atmospheric concentrations
- Three rounds of deployment in the area
 - Jan, Feb, Mar
- All three rounds showed higher hexavalent chromium content of deposited particles near Riverside Cement



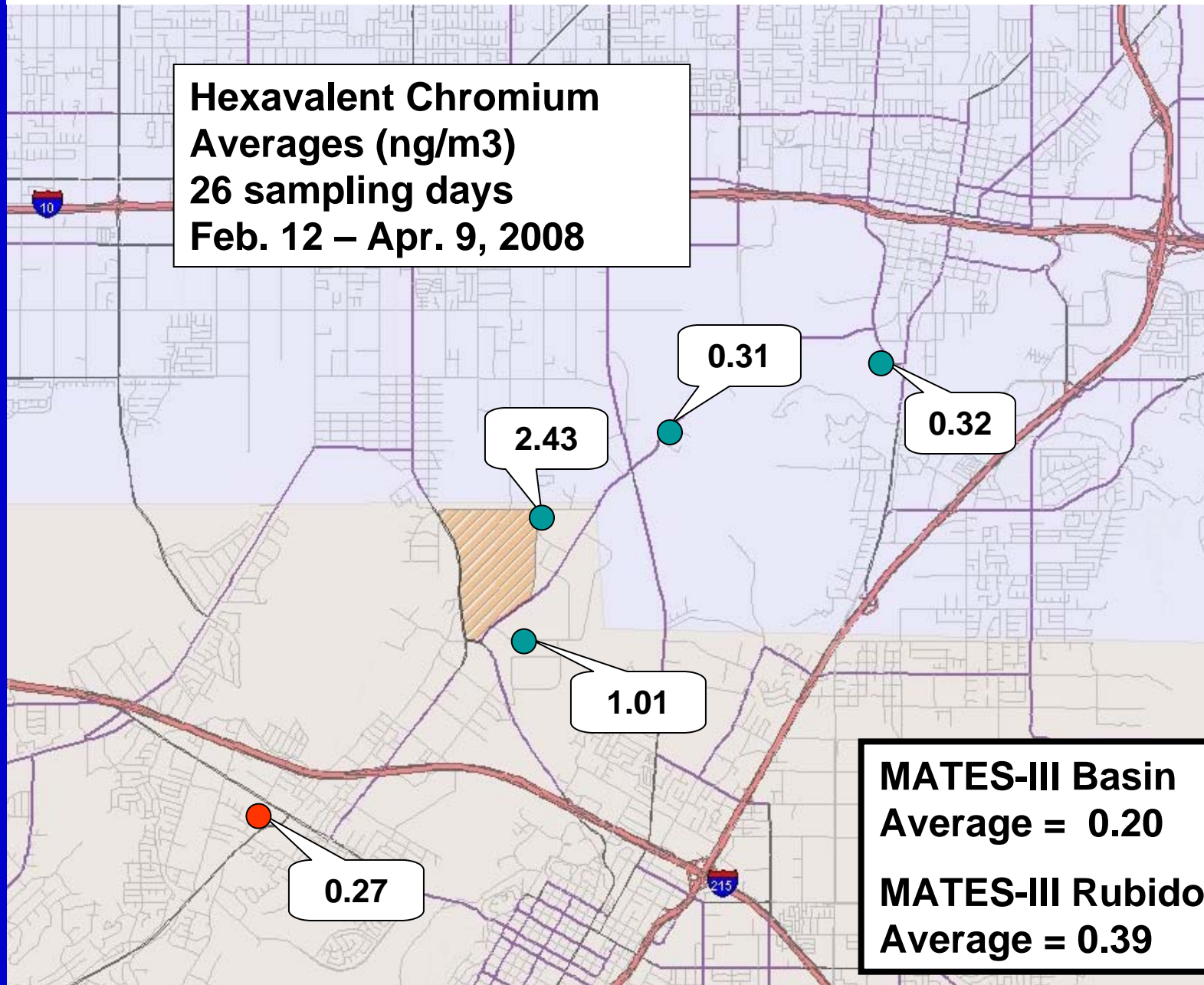
Cr6 Deposition Plate Results - Round 3

- Highest ●
- Middle ●
- Lowest ●

Extensive Sweep of the Area for Other Hexavalent Chromium Sources

- More than 50 square mile area around Riverside Cement
- Identified 444 regulated or potentially regulated sources
- None had hexavalent chromium emissions at levels that would lead to the observed monitored concentrations

PM samplers for Hexavalent Chromium



Emissions Tests

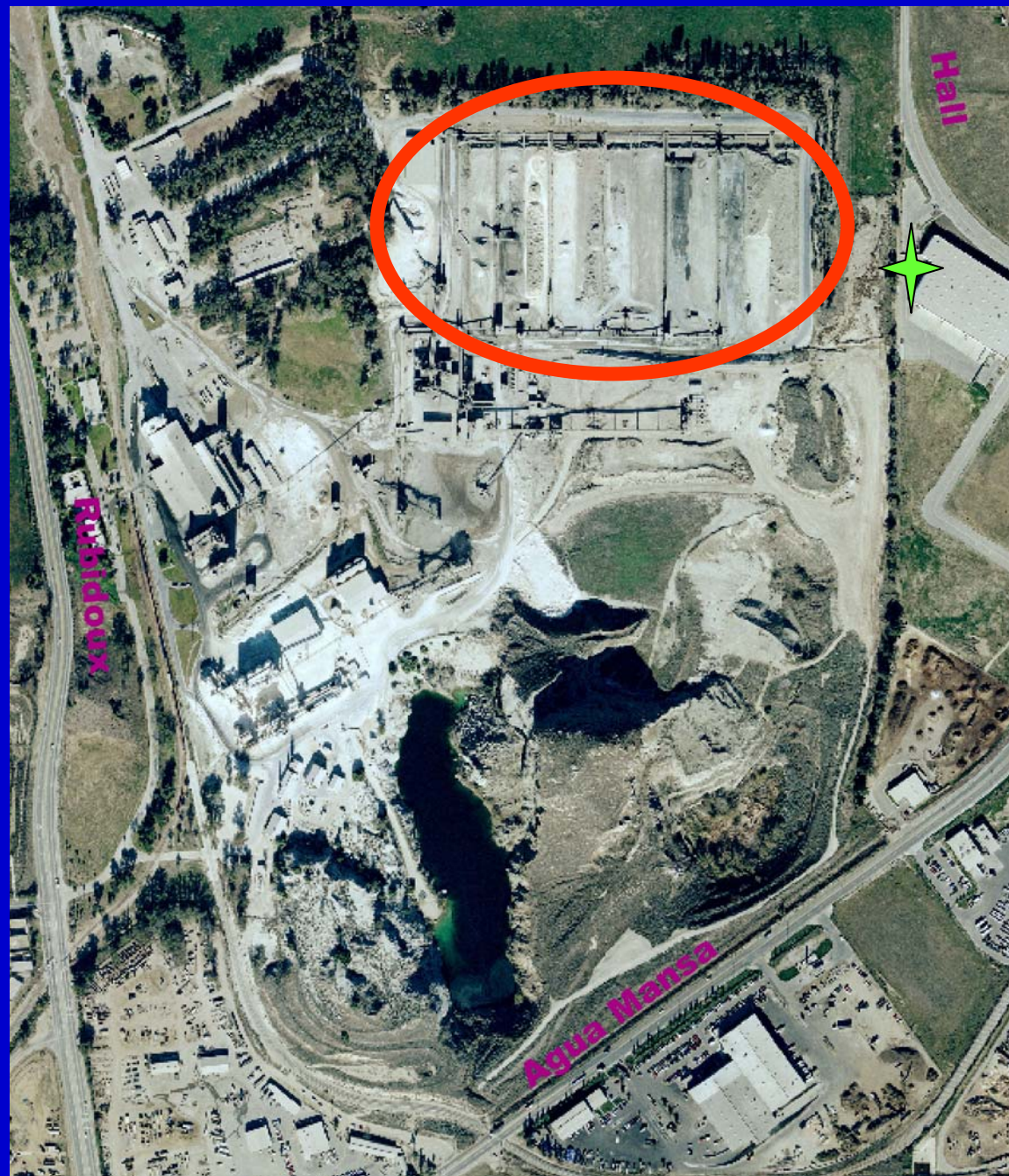
- White cement production facility - Kiln stack tested on March 19 - 21, 2008
 - Very low levels of hexavalent chromium emitted
 - Not enough to account for levels observed at offsite monitoring locations

Material Samples from Riverside Cement

- Collected samples from Riverside Cement Facility
 - Soil
 - Finished product
 - Clinker storage piles
 - Bag-house fall-out
- Higher levels of hexavalent chromium found in gray cement materials
- Not enough to produce observed concentrations at sampling sites

Gray Clinker Storage Piles

★ Monitoring Location



Upon Further Analysis...

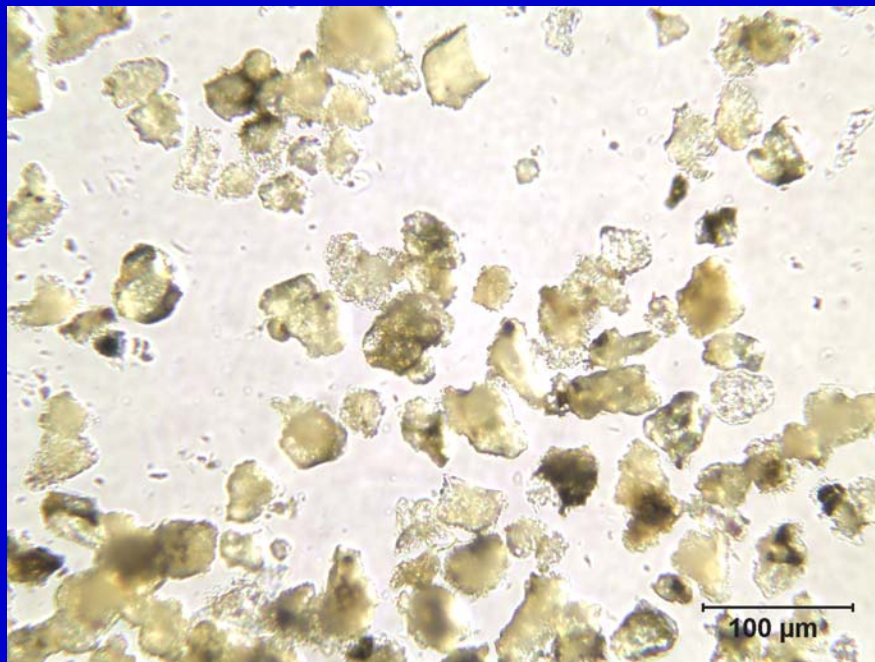
- Separated larger pieces of storage pile gray clinker from fine dust material using a sieve
- Fine dust showed much higher hexavalent chromium content
- Fine dust is more likely to become airborne and blow offsite
- Observed concentrations at sampling sites now within the range of model predictions

	Bulk samples	Sieved Samples ($<44 \mu\text{m}$)
	Cr+6	Cr+6
Location	(ppb)	(ppb)
Bay A surface	500	
Bay A sub-surface	750	3980
Bay B surface	800	3350
Bay B sub-surface	870	
Bay H surface	1320	6830
Bay H sub-surface	2030	
Bay I surface	1140	2070
Bay I sub-surface	1120	
Bay J surface	1670	15000
Bay J sub-surface	1740	

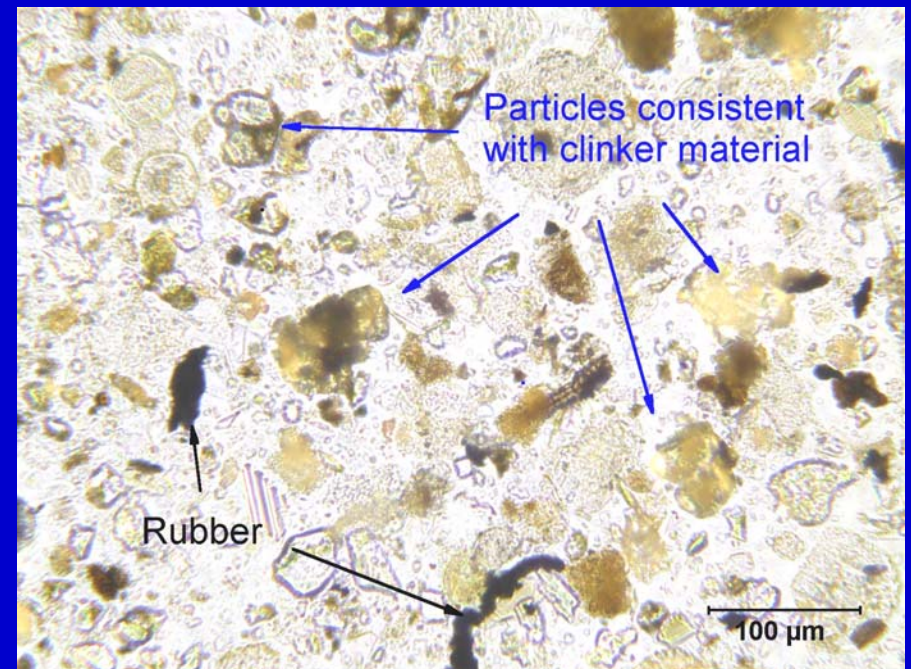
Fingerprinting

- Microscopically examined gray clinker fine dust and particles on the deposition plates

Gray Clinker Fine Dust

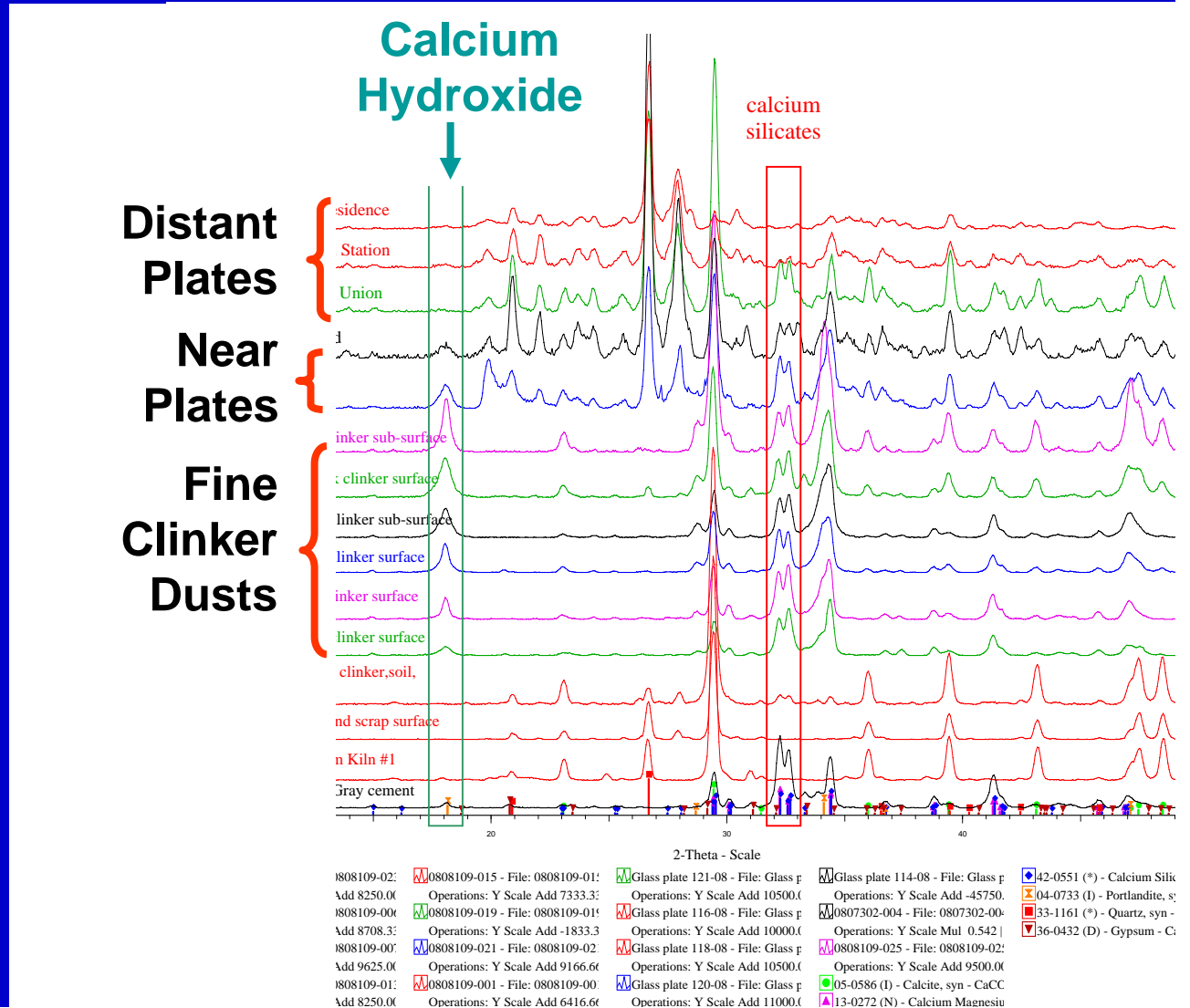


Deposition Plate Adjacent to Riverside Cement



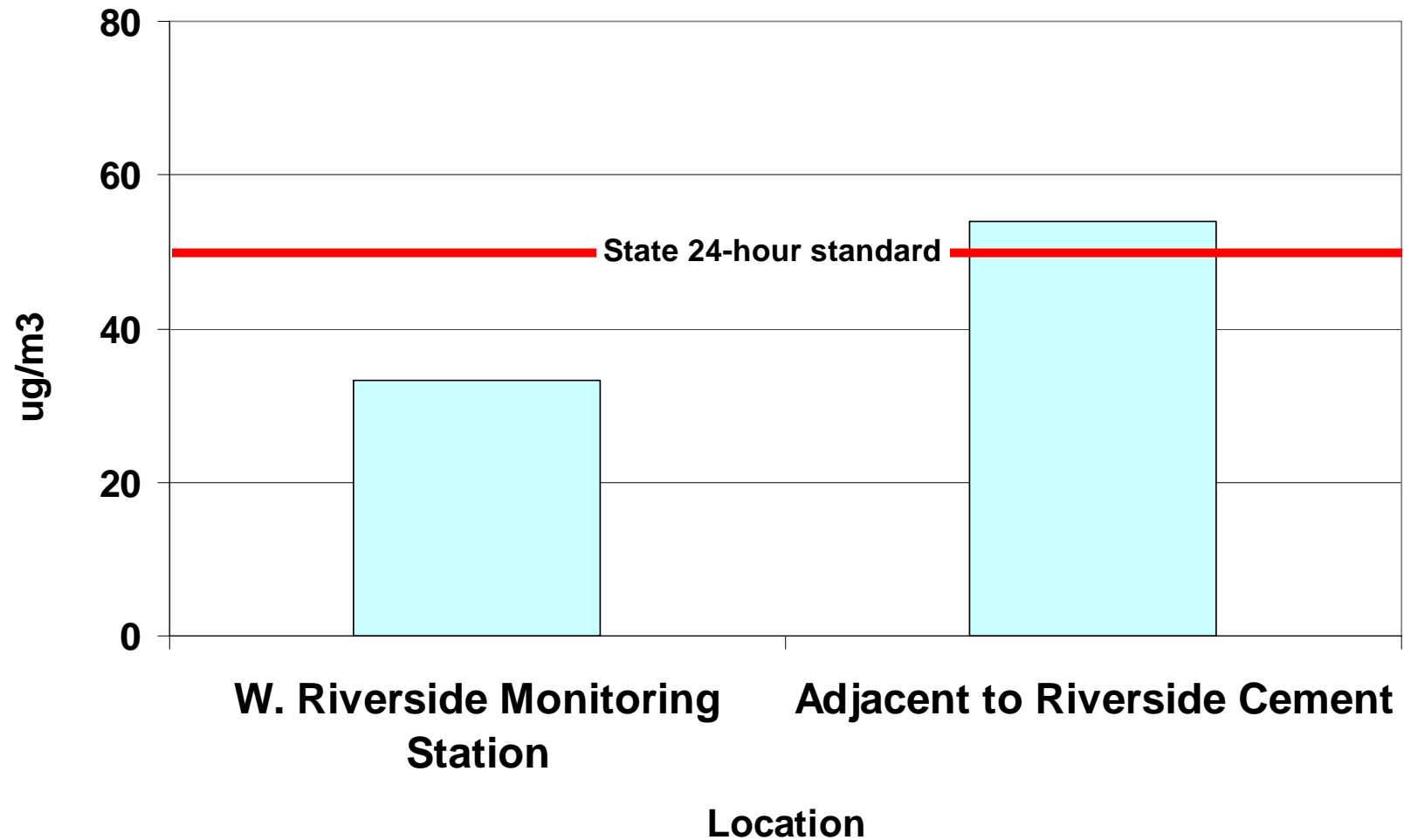
More Fingerprinting

- X-Ray Diffraction (XRD) to measure chemical composition and crystal structure
- Calcium hydroxide a marker for fine clinker dust
- Found on deposition plates nearer facility



Dust Emissions (PM10)

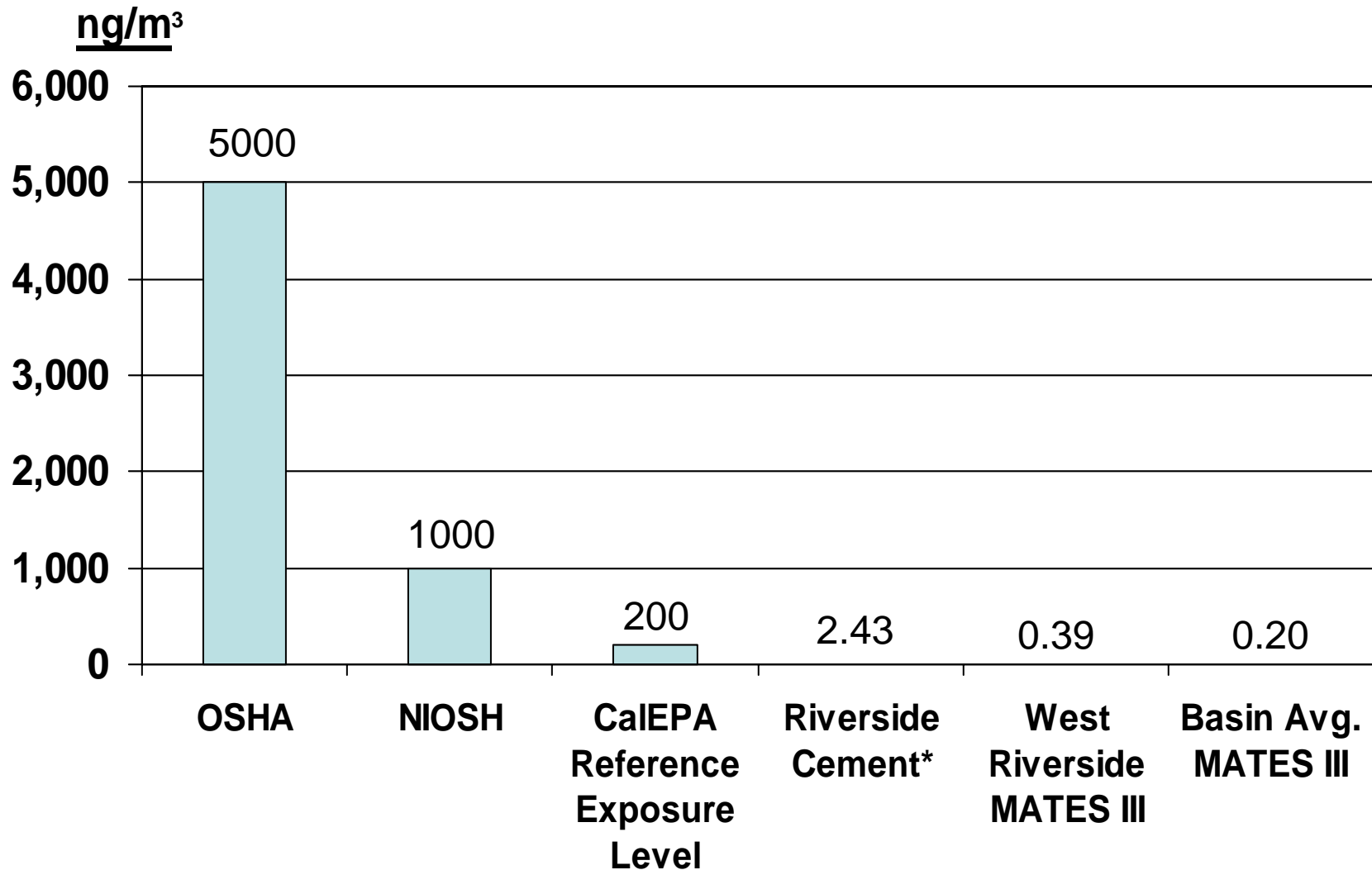
Average PM10 from 3/26 - 4/9, 2008



Cancer Risk

- Lifetime cancer risk based on 70 years of continuous exposure
- Basinwide average is ~1200 in one million
- Only 7 weeks of data collected to date
- Immediately adjacent to the site
 - 350 to 500 in one million
- Similar to risk levels found next to a busy freeway, a rail yard or a chrome plating facility

Hexavalent Chromium Regulatory Levels and Monitored Levels



***Samples from Feb 12 to Apr 9, 2008 taken adjacent to Riverside Cement**

Next Steps

- Aggressive action to reduce the hexavalent chromium emissions from Riverside Cement and lower the risk levels in the community around the facility
 - Notices of Violation for visible dust emissions
 - Potentially modify permit requirements
 - New regulation, specific to cement production facilities, limiting hexavalent chromium emissions
 - Continued and additional sampling in the community for hexavalent chromium and dust (PM10)
 - Ongoing field surveillance and inspections