MATES – Overview of Fixed Site Measurements

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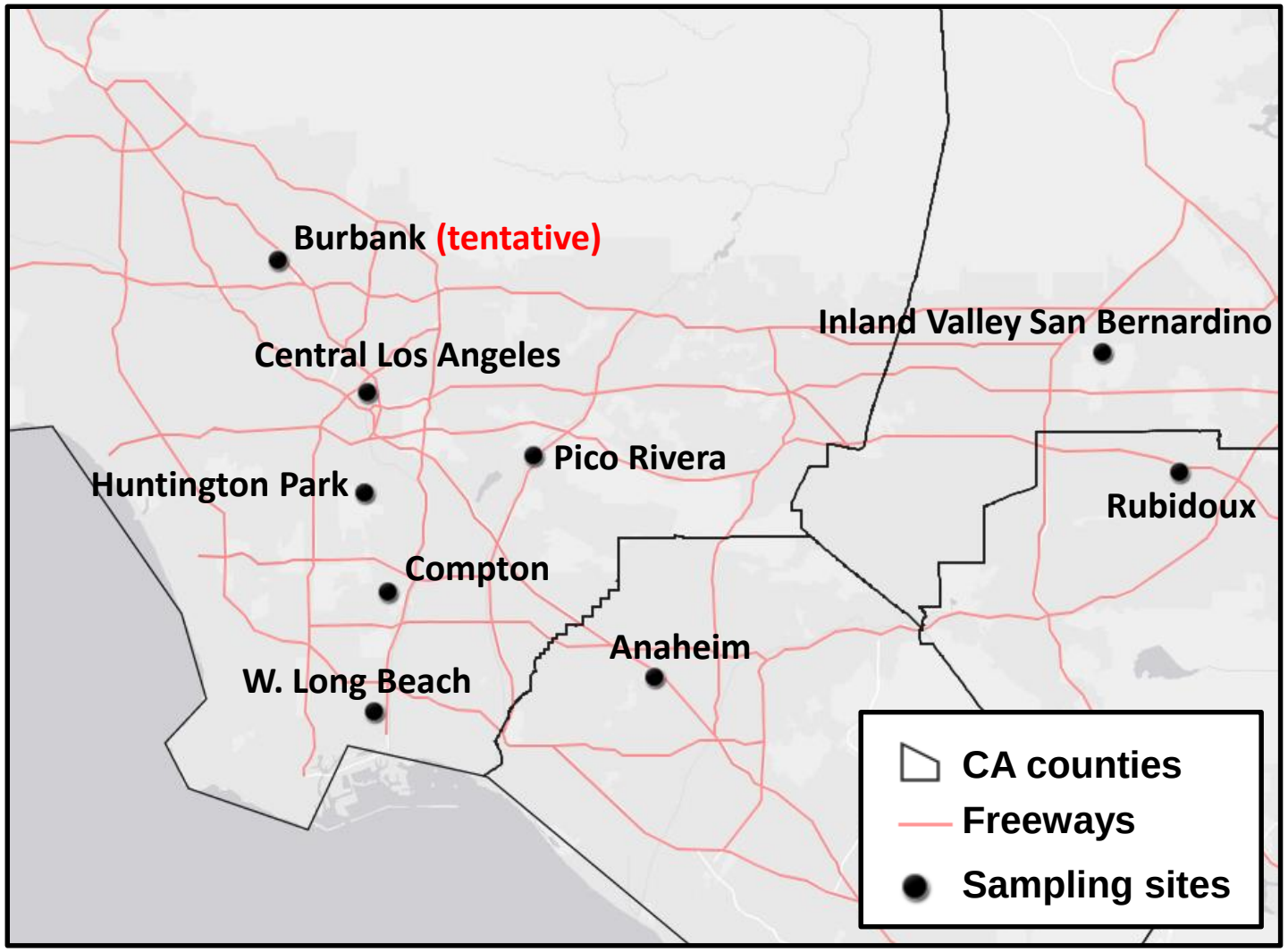
MATES V TECHNICAL ADVISORY GROUP MEETING

JULY 6, 2017

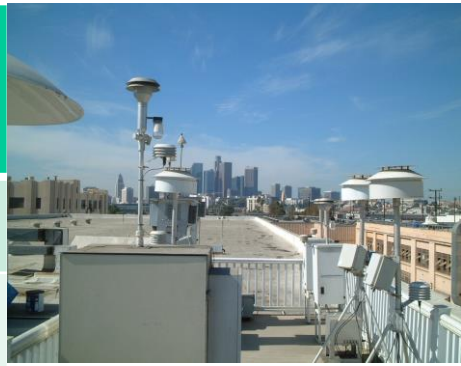
MATES (V) Monitoring Sites

10 sites, every 6th day, January 2018 – December 2018



MATES (V) Monitoring & Analysis

Substance	Sampling Equipment	Analytical Method
Black Carbon	Aethalometer	Optical absorption
Ultrafine PM	CPC	Optical counting
VOCs	XonTech 910A/ 912	TO-15 (GC/MS)
Carbonyls	XonTech 924	TO-11 (HPLC)
TSP metals	XonTech 924	ED-XRF
Cr^{+6}	XonTech 924	IC
PAHs (limited)	Hi-Vol sampler	GC/MS
PM2.5 Speciation		
Metals	Met One SASS	ED-XRF
EC/OC	Met One SASS	Thermal-optical



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- Benzene
- 1,3-Butadiene
- Carbon Tetrachloride
- Chloroform
- Dibromoethane
- 1,2-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- Ethylbenzene
- Methylene Chloride
- Methyl t-Butyl Ether
- Perchloroethylene
- Styrene
- Toluene
- Trichloroethylene
- (m+p)-Xylenes
- o-Xylene
- Vinyl Chloride

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- Acetaldehyde
- Formaldehyde
- Methyl Ethyl Ketone

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- Arsenic
- Cadmium
- Copper
- Lead
- Manganese
- Nickel
- Selenium

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- Benz(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Dibenz(ah)anthracene
- Indeno(123-cd)pyrene
- Naphthalene

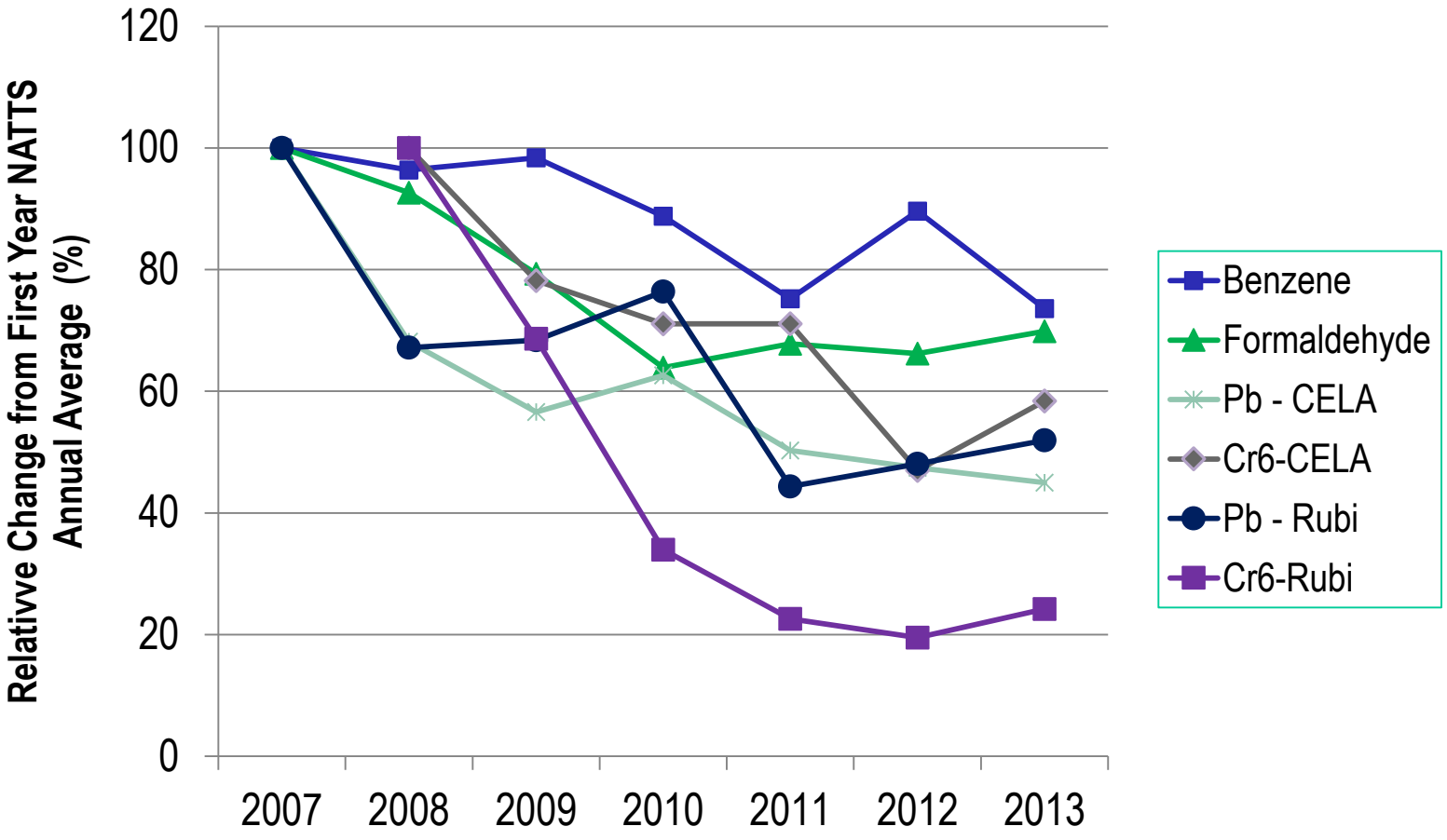
Quality Assurance Overview

Objectives:

- Provide ambient air toxics data meeting the requirements for accuracy and precision to serve as inputs to risk assessment model(s)
- Provide a database of ambient air toxics data that is comparable to previous MATES and other air toxics measurement program data (where applicable)

			Criteria/ Parameters			
Assessment	**Measures**	**Procedures**	VOCs	Carbonyls	PM10	PM2.5
Accuracy	Percent Deviation from True Value	Audits	± 25%	± 25%	± 10%	± 10%
	95% Probability Limits		< 30%	< 30%	< 15%	< 15%
Precision	Percent Deviation from True Value	Collocation	± 25%	± 25%	± 10%	± 10%
	95% Probability Limits		< 30%	< 30%	< 15%	< 15%
Completeness	Percent of Valid Data		85%	75%	90%	90%

NATTS Trends for Selected Pollutants



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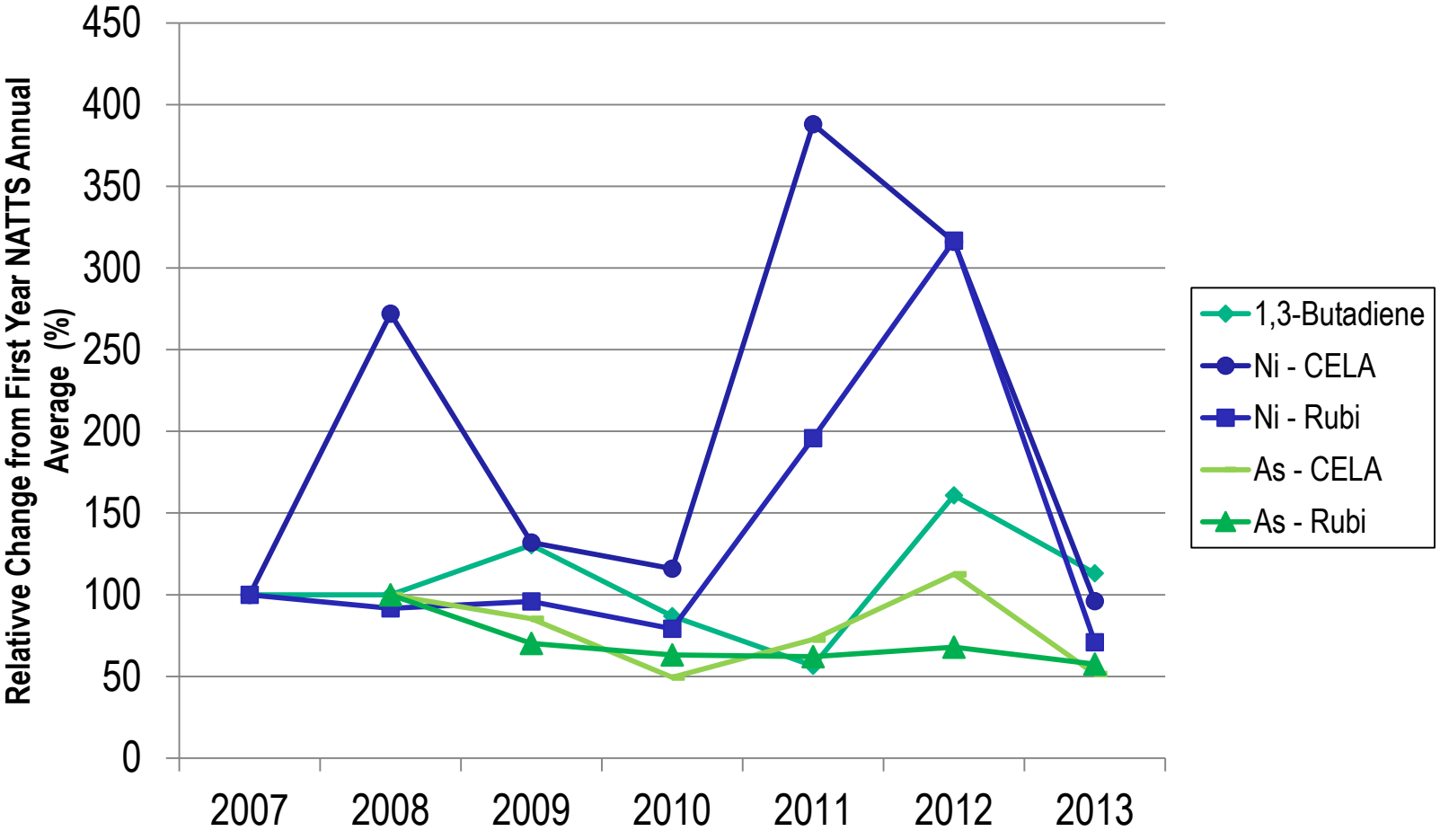

Quality Assurance Overview

Quality Control:

- Inspections and Testing of Consumables, Instruments, and Equipment

- Technical checks in operations to assess measurement confidence limits
  - Flow checks
  - Calibrations
  - Blanks
  - Intercomparisons
  - Replicates
  - Duplicates

- Data Validation