Agenda No. 8

MATES IV Update

AQMD Governing Board Retreat
April 12 - 13, 2012

Cleaning the Air That We Breathe…

1

Update

- Board approved $1.36 million budget over 2012-14
  - Monitoring equipment & supplies
  - Temporary staff, support services
- Technical Advisory Group formed
- Monitoring scheduled to begin June, 2012

2

Technical Advisory Group

Alberto Ayala, PhD	CARB
Judith Chow, ScD	Desert Research Institute
Maria Costantini, PhD	Health Effects Institute
Rob Farber, PhD	Southern California Edison
Dennis Fitz, MS	UC Riverside CE-CERT
John Froines, PhD	UCLA School of Public Health
Scott Fruin, D.Env.	USC School of Medicine
Kim Hoang, PhD	U.S. EPA Region 9
Michael Kleinman, PhD	University of California, Irvine
Fred Lurmann, MS	Sonoma Technology Inc.
Andy Salmon, PhD	OEHHA
Constantinos Sioutas, ScD	USC Environmental Engineering
Samuel Soret, PhD	Loma Linda University
Yifang Zhu, PhD	UCLA School of Public Health

3

MATES IV Monitoring

- Continuation of MATES III sites for trends
  - 10 sites, 1-in-6 day, 24-hr sampling
- Add Ultra Fine Particles (UFP) and Black Carbon (BC)
- Local exposures to mobile source emissions
  - UFP and BC using mobile platform

4

Monitoring Sites

Site	Address
Anaheim	1010 S. Harbor Blvd.
Burbank	228 W. Palm Ave.
Compton	720 N. Bullis Rd.
Inland Valley San Bernardino	14360 Arrow Highway
Huntington Park	TBD
North Long Beach	3648 N. Long Beach Blvd.
Central Los Angeles	1630 N. Main St., Los Angeles
Pico Rivera	3713B San Gabriel River Parkway
Rubidoux	5888 Mission Blvd.
West Long Beach	Hudson School

5

MATES IV Monitoring Substances

- VOCs
- Carbonyls
- TSP metals
- Cr $^{+6}$
- Lead
- Ultrafine PM
- Black Carbon
- PM2.5 speciation
  - Metals
  - Elemental Carbon
  - Organic Carbon

6

Proposed Local-Scale Sites

- Mobile source impacts: Ultrafine & Diesel PM
- Mobile monitoring platforms and saturation monitoring – short-term deployment
- Potential Locations (6-8 total)
  - Freeways
    - I-710, CA-110, CA-103
  - Intersections/Warehouses
    - Mira Loma, …
  - Rail yards
    - ICTF, San Bernardino
  - Airports
    - LAX, Long Beach
  - Communities
    - Boyle Heights, …

7

Toxics Emissions Inventory Update

- Inventory based on 2012 AQMP
  - 2008 baseline year
- Projected to 2012/13 using growth and control factors from the 2012 AQMP
  - Growth factors provided by SCAG
- 2 km by 2 km gridded inventory
  - Domain expanded to include Coachella Valley

8

Proposed Modeling

- Consistent with MATES III
  - CAMx dispersion platform with reactive tracer modeling capability (RTRAC)
  - MATES III 2 km x 2 km grid
  - 2012/13 Weather Research & Forecasting Model
- Output:
  - Concentration by substance for each grid
  - Estimated risk by grid
  - Comparison with MATES III

9

Risk Characterization

- Methodology: URF (or 1/REL) x concentration
  - Ambient monitoring at 10 sites
  - Modeling by 2 km grid cells
- Use most current URFs & RELs
  - OEHHA/CARB
- Output
  - Average from monitoring sites
  - Grid visualization for modeled concentrations
  - Population-weighted risk for modeled concentrations over region

10

Toxics for Risk Characterization

1,3-Butadiene	Chloroform	Lead
Acetaldehyde	Chromium VI	Manganese
Arsenic	Diesel PM	Methylene Chloride
Benzene	Dichlorobenzene	Nickel
Beryllium	Dichloroethane	Tetrachloroethylene
Cadmium	Ethyl benzene	Trichloroethylene
Carbon Tetrachloride	Formaldehyde	Vinyl Chloride

Risk estimated for 70-year exposure and applying OEHHA risk factors

11

PAH Measurements

- MATES III monitored for Naphthalene and other PAHs at 3 sites
  - LA, Rubidoux, N. Long Beach
  - Naphthalene: 6.1 per million risk
  - All other PAHs: 0.3 per million
- Analyses require outside laboratory
- Propose very limited PAHs in MATES IV
  - Available from EPA monitoring at 2 sites
  - LA, Rubidoux

12

Diesel PM Estimation Methodology

- MATES III:
  - PM2.5 organics speciation and Chemical Mass Balance (CMB)
  - Elemental Carbon (EC) as surrogate
  - EC based estimate similar to CMB

CMB method	3.2 – 3.5 ug/m3
EC emissions method	3.5 ug/m3

- Lack speciation profiles for current fleet
- Will seek Advisory Group input

13

Project Review

- Technical Advisory Group
- Stakeholders & interested parties public meetings
- Meeting materials posted on AQMD website

Potential Issues

- Compounds sampled
- Diesel estimation method
- Local-scale site selection
- Presentation of UFP
- Expand modeling to Coachella Valley

14

Proposed Schedule

- Technical Advisory Group meets – 4/12 & 5/12
- Finalize monitoring & analytical protocol – 5/12
- Monitoring – 6/12 through 6/13
- Finalize Inventory protocol - 5/12
- Finalize Modeling protocol - 12/12
- Complete Modeling and risk estimates – 8/13
- Draft report – 11/13 – TAG and public review
- Final draft to Board – 3/14

15

16