

## VOC White Paper Draft Outline

1. Introduction
  - a. Scope of White Paper
  - b. Potential benefits of VOC control
    - i. Ozone
    - ii. PM2.5
    - iii. Toxics
  - c. Overview of historical VOC controls
    - i. Sources
      1. Solvent, coatings
      2. Fugitive emissions
      3. Fuels
      4. Pollution prevention
    - ii. Brief history of SCAQMD VOC emission control programs
    - iii. Brief history of CARB rules that control VOC emissions
2. The role of VOCs in ozone formation
  - a. Ozone chemistry in NO<sub>x</sub> and O<sub>3</sub> closed system
  - b. Ozone chemistry in the presence of VOC
  - c. Reactivity considerations
3. Gas-phase organic compounds as a source of PM<sub>2.5</sub>
  - a. Composition of organic particulate matter
  - b. Sources of organic particulate matter
    - i. Primary and secondary organic aerosol
    - ii. Biogenic and anthropogenic VOC oxidation products
  - c. Semi-Volatile Organic Compounds (SVOCs), Intermediate-volatility organic compounds (IVOCs), and Low Vapor Pressure (LVP) compounds
  - d. Ozone formation potential vs. secondary organic aerosol formation potential
4. VOC Emissions Inventory
  - a. Base year inventory
    - i. 2016 AQMP will use 2012 as the base year
    - ii. List major source categories
  - b. Future year inventory: this will be updated with the new base year
  - c. Uncertainties in estimating emissions inventory

- i. Fugitive emissions from stationary sources such as oil refineries: Recent remote sensing results
  - ii. High emitters from mobile source sector
  - iii. Low Vapor Pressure Solvents (LVPs)
  - iv. Potentially outdated inventories for existing rules
5. Ozone formation and attainment in the South Coast Air Basin
  - a. Numerical simulations using WRF-CMAQ modeling system
  - b. Sensitivity analysis for attainment Paths
    - i. NO<sub>x</sub> only control strategy
    - ii. VOC only control strategy
    - iii. NO<sub>x</sub> and VOC combined control strategy
      1. Time and place VOC controls
      2. VOC controls by source category (reactivity)
      3. Discussion of findings
6. Future VOC Strategies
  - a. Concurrent reductions from NO<sub>x</sub> and GHG strategies, where applicable
  - b. Fugitive emissions
  - c. Coating, solvents, adhesives, etc.
7. Key policy questions
  - a. The need for VOC controls to attain both ozone and PM<sub>2.5</sub> standards
  - b. If needed, types of VOC controls
8. Recommendations
9. References