Noncancer Health Impacts Methodology

November 13, 2007
Commerce Railyards

Air Resources Board
California Environmental Protection Agency
Overview

- Background
- Key steps of non-cancer health impacts analysis
- Air quality in Commerce
- Health impacts in South Coast Air Basin
- Next steps
Background

- Draft Health Risk Assessments (HRA) for 7 Southern California Designated Railyards released
  - UP Commerce, UP LATC, UP Mira Loma, BNSF Hobart, BNSF Sheila, BNSF Commerce/Eastern
  - Cancer risk considered
- Staff is considering the non-cancer health impacts
Key Steps of Methodology

1. Air Quality Data
2. Emissions Estimates
3. Total Exposure
4. Baseline Incidence Rates & Response Functions
5. Health Impacts
Methodology

- Developed and used by U.S. EPA
  - Diesel regulatory impact analysis
- Endorsed by national and international health organizations
- Used by ARB/OEHHA for State ambient air quality standards for PM and Ozone
- Used by ARB for diesel PM control measures and Goods Movement on a statewide basis
Sources of Information

- Scientific peer-reviewed publications
- ARB’s 2002 PM standards review
- ARB’s 2005 ozone standard review
- U.S. EPA’s PM standard review
Health Endpoints Considered

- Staff sought sufficient evidence from scientific literature to quantify health endpoints
- 7 outcomes quantified for PM, including some combined endpoints (all-cause mortality, asthma and respiratory effects)
- Other endpoints are addressed qualitatively
Health Endpoints Quantified

- Premature death
- Hospital admissions (heart)
- Hospital admissions (lung)
- Acute bronchitis
- Asthma/other respiratory symptoms
- Work loss days
- Minor restricted activity days
Trends in PM2.5 Exposures

- City of Commerce:
  - 25.6 µg/m³ in 1999
  - 17.6 µg/m³ in 2005

- South Coast Air Basin:
  - 22.2 µg/m³ in 1999
  - 15.9 µg/m³ in 2005
Update Methodology

- Update PM2.5-death relationship
- Update diesel PM concentrations
- Consider applying methodology to smaller populations and smaller changes in PM concentrations
- Methodology currently under peer review
Next Steps

• Release update methodology to the public and present results in a workshop in January 2008
• Present to the Board in early 2008
  – Update health impacts associated with Goods Movement, including rail
• For more info:
  – http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm
END of SLIDES for Nov 13, 2007