Marine Shipping Update

Board of Directors
Santa Barbara County
Air Pollution Control District

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Inspiration Pt, Anacapa Island
Shipping a major source of air pollution:
- Diesel particulate, air toxics, sulfur dioxide, greenhouse gases
- Ozone-forming pollutants – nitrogen oxides (NOx) and reactive organic compounds

County Sources of NOx (2010 Clean Air Plan)

- Marine Shipping, Santa Barbara Channel 54%
- On-Road Motor Vehicles 19%
- Other Mobile Sources 17%
- Stationary Sources 9%
- Area-Wide Sources, 1%
Update Overview

- State Fuel Rule
- Coast Guard Study
- International Regulations
- Meeting with Maersk Lines
- Conclusions & Variables
- Looking Ahead
State Fuel Rule

• Jul 2009: lower-sulfur fuel mandated when vessels travel through Santa Barbara Channel (24nm off CA coast)
• Goal: reduce stack emissions of diesel particulate, toxics, and sulfur
• Ships went around Channel to avoid rule
• Effective Dec 2011: rule extended to 24nm outside Channel Islands
Channel Trip Trend

Number of Transits through the Santa Barbara Channel 2000 - 2011

- 9/2008 - Recession
- 7/2009 - ARB Fuel Rule
- 3/2011 - Tsunami
- 12/2011 - Fuel Rule Footprint Expanded
Emissions Benefits Documented

• NOAA plane flies over Maersk ship
• Measures pollutants from stack before and after switch to low-sulfur fuel (state fuel rule) and voluntary speed reduction
• Several pollutants, including particulate and sulfur dioxide, reduced by 90% – Did not measure NOx
Coast Guard Study

• Port Access Route Study initiated Apr 2010
  – Concerns about ship traffic in area outside Channel without approved shipping lanes and in Navy missile testing range
  – Focus on safety, traffic management, marine environment

• Study released Nov 2011 – recommended:
  – Creating new traffic lanes outside Islands
  – Moving existing lanes closer together (further north of Islands, protecting marine sanctuary)

• Federal rulemaking required to implement
Emission Control Areas

• International Maritime Organization designates Emission Control Area (ECA)
  – Ships traveling up to 200 miles off North American must meet stricter fuel and new engine standards
  – Fuel sulfur limits effective Aug 2012 – different standards and timeline than state
February Meeting with Maersk

• Met with Lee Kindberg, Director of Environment and Sustainability, Maersk Shipping Lines
• Representatives from District Board, APCD staff, NOAA, Environmental Defense Center, UCSB Bren School, Star Crest (emissions inventories)
• Initiate discussion and exchange with shipping industry leader
Maersk Overview

• Largest container shipping company in the world
• Green leader in industry
  – Only shipping company to support creation of the North American ECA
Maersk Green Initiatives

- Voluntarily reducing fuel sulfur levels
- Steady steaming
  - Fuel use and costs increase exponentially at higher speeds; lowest constant speed is best
- Low carbon leadership
  - Documenting supply chain for customers
  - Quantify and verify GHG reductions
Clean Cargo Working Group is a business-to-business forum with the goal “to promote more sustainable product transportation.”

CCWG’s membership (2010)

- Standardized footprint calculation tools
- Annual environmental performance survey and benchmarking
- Working to harmonize environmental calculations globally
- Emissions factors published by trade lane.
Industry Challenges

• Need to make it to ports by time certain
  – Slowing speeds means adding vessel to route
  – Costs of slipping on schedule
• Concerns about ability to steer ship at slow speeds
Additional Variables

• Potential for route changes away from CA ports and air quality improvements
  – Panama Canal expansion will allow larger ships through Canal
  – Expense of lower sulfur fuel (ECA and state) a factor
  – Sustainability initiatives reducing costs and environmental impacts
Looking Ahead

- Information gathering
  - Continue to meet with industry, ports, partners
  - Increase data capture and accuracy
  - Interest in vessel speed reduction for potential NOx and GHG reductions
  - Following state speed reduction study