Ports and the Clean Air Act: It’s Spreading!

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Ports and the Clean Air Act

- What are the Sources?
- Regulations Affecting Ports
  - State Implementation Plans
  - Stationary Source Permits
  - Conformity
- Case Study: Port of Houston Authority
- What Can Ports Do?
- The Future...
Port Related Emissions

- Offroad Equipment - Yard Tractors, Rubber Tire Gantries (RTGs)
- Ocean Going Vessels
- Dredges
- Tug/ Tows/ Ferries
- Rail
- Onroad Vehicles
  - Port Fleets
  - Trucks
- Stationary Sources - Grain Elevators, Paint Booths, Welding Shops
Regulations

- Ports are regulated!
  - International Vessel Engine Standards
  - National Vessel, Offroad, and Onroad Engine Standards and Stationary Source Permits
  - State Stationary Source Permits
  - Regional State Implementation Plans and Conformity Requirements
State Implementation Plans (SIP)

- Required for Regions exceeding the National Ambient Air Quality Standards
- State Agency must show attainment with NAAQS by a designated year.
- Reductions achieved in three categories: onroad mobile, offroad mobile, and stationary sources.
  - In the past, SIP attainment demonstrations focused on stationary sources and onroad mobile sources
General Conformity

- Required for projects in non-attainment areas with federal funding and/or a federal permit/action.
- Estimate emissions from the federal action in which the federal agency has control over.
- Emissions over the specific de minimus value may require mitigation.

.....More on this by Air Princess Lingard Knutson
Transportation Conformity

- Applies to non-attainment areas
- Metropolitan Planning Organization (MPO) required to perform the conformity determination to the EPA
- Must show that onroad emissions conform with the allotment of emissions in the SIP.
- Port onroad emissions usually not specified.
Case Study for a Port in a Severe Non-Attainment Area for Ozone
Setting the Stage... 1998

- SIP Development Began in winter of 1998
- Port Specific Rules Considered:
  - Tug and Vessel Operation Restrictions
  - 5 Minute Idle Rule
  - Engine Stds/ Fuel Stds/ Maintenance Requirements
  - Construction Shift 6 am to noon
- Port Terminal Expansion Project-USACE preparing DEIS.
- Elevated PM 10 Measurements Adjacent to Bulk Cargo Facility
Port of Houston’s Path

- SIP
  - Participation on ALL Committees
    » Educate, Educate, Educate…
    » Inform Port Users
    » Develop Reasonable Control Measures
  - Promoted Legislative “Fix”
  - Conduct Demo Projects
  - New Vessel & Equipment Emission Inventory
  - Assist MPO—Became “Special Generator”

- Avoided Lawsuits Filed By Construction Industry on the Construction Shift
Port of Houston’s Path

- Expansion
  - Emission Inventory in SIP
  - Traffic in Transportation Conformity
  - “Assisted” USACE with General Conformity
  - Focused on Mitigation Package

- PM 10
  - Conducted Study on Port Impacts and Implemented Control Measures

- Switched to Alternative Fuels
As of 1/28/02... SIP Status

- Tx Legislature Passed Senate Bill 5
  - Modeled After Carl Moyer in CA
  - $100 Million over Next 5 Years for Retrofits, Rebuilds, New Engines, Fuels, and Demo Projects (Lawsuit Pending)
  - Requires $13,000/ton efficiency or better
  - First Submittal - November 2001
    » 19 Entities for $10 Million
    » Several Large Fuel Cell Projects
- PHA Package - $560,000
  » PuriNOx, Rebuilds, and New Engines
As of 1/28/02... SIP Status

- Port Related Rules
  - 5 Minute Idle Rule
  - Fuels
- Voluntary Measures-4 tpd
  - Quality Shipping
  - ????
- Enforceable Commitments
  - Undefined Port Measures
  - PuriNOx
  - Small Engine SCR
- Lawsuit Filed Requesting FIP
As of 1/28/02: Demo’s

- PuriNOx-Fuel Emulsion
  - 2 Years in 5 Yard Trucks
  - 1.5 Years in 2 Yard Cranes
- 25-30% NOx Reduction
- 30-50% PM Reduction
- SB 5 Application
  - Increases Fleet to 20
  - Fueling Station
- Cost Effective $7,500/ton
- Tenant Education
As of 1/28/02... Demo's

SCR
- 550 HP Crane
- 86% NOx Reduction
- Install/Maintenance Difficulties
- Engine Temp. Issues
- Not Cost Effective
  - $18,000/ton
As of 1/28/02... Other Demo’s

- Fuel Cell
  - Power Ship and Reefers
- Biodiesel
- Other SCR’s
- Quality Shipping
  - Part of USCG’s QualShip 21
  - Waiting on EPA/ TNRCC/ USCG/ MPO Agreement
As of 1/28/02... Expansion Project

- Committed to Staying Below General Conformity-25 tpy
  - 4 Different Dredging Plans
  - Air Emission Requirement in Bid Specs
- Use of Alternative Fuels
- Equipment Emission Reductions-25% NOx and 30% PM
- Moved Entry Gate Away from Residential Area
Environmental Stewardship

- Developed Environmental Management System (EMS) Based on ISO 14001
- Commitments for Pollution Prevention, Continual Improvement & Regulatory Compliance
- Objective & Target – 25% NOx Reduction by 2004

Continually Achieving Protection thru Training Awareness and Innovation for our Natural resources
The future...

- SIP - Focus on offroad sector.
  - Significant Focus on Tugs/ Vessels/ Dredges
  - Port Equipment - Retrofits, Fuels, Replacements
  - Significant coordination with tenants to reduce emissions.

- General Conformity
  - More Involvement by USACE/ EPA
  - Nationwide Discussion

- Increased Focus on Diesel Emissions
- Port Expansions
- PM 2.5 Designations
Unresolved...

- States Need Offroad Emission Reductions NOW!
  - States Can Only Regulate Usage and Fuels for Offroad Reductions
  - Retrofits Aren’t There
  - Documentation of Emission Reductions
- International Vessel Emission Reductions
- Funding
- Understanding of Ports
  - Time, Costs, Emission Reductions
What Can Ports Do?

- Develop Emission Inventories
  - Accurate Numbers
  - Control Strategies
- Participate in SIP Development
- Talk to the MPO
- Educate Agencies
- Participate in National Discussions
- Demo Projects
Additional Information on PHA Commitments and EMS – www.peercenter.net
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