Public Workshop to Discuss Reducing Emissions from Mobile Diesel-Fueled Cargo Handling Equipment at Ports and Intermodal Rail Yards

November 10, 2004
Sacramento, California

Overview

♦ Background
♦ Applicability
♦ Survey and Inventory
♦ Regulatory Concepts
♦ Next Steps
Background

Goals

♦ Develop statewide control measure to address emissions from mobile diesel-fueled cargo handling equipment
  – Achieve maximum emission reductions (both near term and long term) for PM and NOx
♦ Consideration by the Board in fourth quarter 2005
Applicability

Why Only Ports and Intermodal Rail Yards?

♦ Proposed off-road in-use diesel engine regulation will address all other cargo handling equipment
♦ Need to address environmental justice concerns
♦ Majority of emissions from cargo handling equipment occurs at ports and intermodal rail facilities
Ports

San Diego
Los Angeles
Long Beach
Port Hueneme
Richmond
San Francisco
Oakland
Stockton
Sacramento
Eureka
Pittsburg
Crockett
Benicia
Richmond
San Francisco
Oakland
Redwood City
Port Hueneme
Los Angeles
Long Beach
San Diego

Intermodal Rail Yards

Richmond
Oakland (2)
Stockton
Lathrop
Fresno (2)
Los Angeles (2)
Carson
Commer (2)
Long Beach
San Diego
San Bernardino
City of Industry
Equipment Types

- yard trucks
- top handlers
- side handlers
- reach stackers
- rubber-tired gantry cranes
- forklifts
- skid steer loaders
- rubber-tired loaders
- sweepers
- dozers
- excavators
- cranes

Survey & Inventory
Emissions Inventory

♦ Off-road inventory updates that will include cargo handling equipment are in progress
♦ Surveying port and intermodal rail yard terminals will provide valuable information to enhance inventory

Distribution of Emissions for Cargo Handling Equipment Categories

Ports of Los Angeles & Long Beach

Diesel PM

- Yard Tractors 72%
- Top & Side Picks 13%
- Cranes 9%
- Forklifts 4%
- Other 2%

NOx

- Yard Tractors 68%
- Top & Side Picks 14%
- Cranes 10%
- Forklifts 2%
- Other 3%

Notes:
• “Cranes” includes mobile cranes, RTG cranes, and reach stackers.
• “Other” includes rubber tired loaders, sweepers, skid steer loaders, dozers and excavators.
Cargo Handling Equipment Survey

♦ Purpose
  – obtain representative sampling
  – enhance off-road emissions inventory
  – aid in estimating emission reductions and cost of proposed regulatory strategies

♦ Participants
  – ports and intermodal rail yards
  – Ports of Los Angeles and Long Beach to provide only the information not already covered in their previous surveys

♦ Expected distribution in November 2004

What Does the Survey Ask?

♦ Equipment and engine data
  – make, model, year, fuel type, horsepower, average annual hours, repower and rebuild data

♦ Emission Control Equipment
  – type, year installed, cost of equipment and maintenance, grants applied

♦ Forecasted Growth
  – expected increases in equipment and hours for 2010 and 2020
When Will Survey Results Be Available?

- Return date of January 15, 2005
- Preliminary summaries will be presented at the next public workshop (first quarter 2005)
- Data summaries will be included in staff report

Proposed Regulatory Concepts
Purpose and Applicability

♦ Purpose: reduce diesel PM and criteria pollutant emissions
♦ Applicability: any person who sells, offers for sale, leases, purchases, owns, or operates any diesel-fueled mobile cargo handling equipment at a port or intermodal rail yard in California

Exemptions

♦ Cargo handling equipment not located at ports or intermodal rail yards
♦ Cargo handling equipment that operates using alternative fuels or spark-ignited engines
♦ Other exemptions may be added through the regulatory process
Performance Standard Goals

♦ Take into account that yard trucks have the biggest contribution of emissions
♦ Apply appropriate BACT for equipment categories
♦ Achieve both near term and long term reductions
♦ Accelerate turnover to Tier 4 off-road standards or 2007 on-road engines, if feasible, for entire fleet

Performance Requirements - All Equipment

♦ Reduce unnecessary idling
♦ When adding equipment to the fleet after January 1, 2006, buy the cleanest available (i.e., 2004 or newer certified on-road engine, alternative fueled engine, new certified off-road engine with verified control device, etc.)
Performance Requirements - Yard Trucks (In-Use)

<table>
<thead>
<tr>
<th>Model Year or Effective* Model Year</th>
<th>Standard</th>
<th>Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-1996</td>
<td>Install 2004 or later certified on-road engine or equivalent**</td>
<td>July 2007</td>
</tr>
<tr>
<td>1996-2002 With verified ECS installed by adoption date</td>
<td>Install 2004 or later certified on-road engine or equivalent**</td>
<td>July 2008</td>
</tr>
<tr>
<td>1996-2002 Without verified ECS installed</td>
<td>Install 2004 or later certified on-road engine or equivalent**</td>
<td>July 2007</td>
</tr>
<tr>
<td>2003-2005 (verified ECS is available)</td>
<td>Install highest level verified ECS</td>
<td>July 2007</td>
</tr>
<tr>
<td>2003-2005 (verified ECS is NOT available)</td>
<td>Install Tier 4 certified off-road engine</td>
<td>July 2011***</td>
</tr>
<tr>
<td>2006-2007</td>
<td>Install Tier 4 certified off-road engine</td>
<td>July 2013</td>
</tr>
<tr>
<td>2008-2010</td>
<td>Install Tier 4 certified off-road engine</td>
<td>July 2016</td>
</tr>
</tbody>
</table>

* "Effective Model Year" refers to the year the new engine was installed regardless of the model year of the equipment (i.e., a new 2004 on-road engine installed in 2006 into a 1997 model year vehicle would then have an effective model year of 2006 and would be required to meet the standards for that effective model year).

** We are currently evaluating the applicability of 2007 on-road engines and may revise the requirements based on the feasibility of those engines.

*** For engines under 175 horsepower, the compliance date for this group would be 2012 (to align with the effective date of Tier 4 standards for 100 to 175 horsepower engines).

Performance Requirements - All Other In-Use Equipment (Excluding Yard Trucks)

- Install best available control technology (BACT)
  - new certified on-road diesel engine if available;
  - verified Level 3 ECS
  - engine that meets certified Tier 4 off-road diesel engine standards
  - alternative fuels
  - highest level ECS verified for that equipment
  - engine that meets certified Tier 3 off-road diesel engine standards and install verified ECS if available
Performance Requirements - All Other In-Use Equipment (Excluding Yard Trucks)

♦ All equipment meet Tier 4 certified off-road diesel engine standards by specified date (to be determined)
  – currently evaluating cost and average useful life and may consider equipment-specific timelines to meet this requirement

♦ Example BACT compliance schedule

<table>
<thead>
<tr>
<th>Group</th>
<th>Engine Model Years</th>
<th>Compliance Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pre-1987</td>
<td>January 1, 2007</td>
</tr>
<tr>
<td>3</td>
<td>1996-2005</td>
<td>January 1, 2010</td>
</tr>
</tbody>
</table>

Reporting Requirements

♦ Submit initial compliance plan describing how regulation compliance will be achieved and submit yearly updates thereafter
Next Steps

♦ Survey distribution November 2004 and return January 2005
♦ Stakeholder meetings
♦ Workgroup meetings
♦ Next public workshop first quarter 2005

Contacts

♦ Lisa Williams (Staff)
  e-mail: lwilliam@arb.ca.gov
  phone: 916.327.1498

♦ John Lee (Staff)
  e-mail: jlee@arb.ca.gov
  phone: 916.327.5975

♦ Bonnie Soriano (Staff)
  e-mail: bsoriano@arb.ca.gov
  phone: 916.327.6888

♦ Peggy Taricco, Manager Technical Analysis Section
  e-mail: ptaricco@arb.ca.gov
  phone: 916.327.7213

♦ Dan Donohoue, Chief Emissions Assessment Branch
  e-mail: ddonoho@arb.ca.gov
  phone: 916.322.6023

Web Site: http://www.arb.ca.gov/cargo