

# **Proposed Amendments to the Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards Regulation**

**Air Resources Board  
Public Hearing  
Sacramento, California  
September 22, 2011**



**California Environmental Protection Agency**

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**Air Resources Board**

# Overview

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- ◆ Mobile Cargo Handling Equipment Regulation
- ◆ Proposed Amendments
- ◆ Impacts
- ◆ Proposed 15-Day Changes
- ◆ Future Activities
- ◆ Summary and Recommendations



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# Mobile Cargo Handling Equipment Regulation



**Rubber-tired Gantry Crane**

# CHE Regulation Requirements

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- ◆ Applies to cargo handling equipment (CHE) operating at California's ports and intermodal rail yards
- ◆ Establishes best available control technology (BACT) for new and in-use CHE
- ◆ Includes recordkeeping and reporting requirements



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## New and In-Use Equipment Requirements

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- ◆ New yard trucks must be equipped with:
  - on-road engines meeting current on-road or Tier 4 final off-road standards (available 2014 – 2015)
- ◆ New non-yard truck CHE must be equipped with:
  - on-road or off-road engines meeting current emissions standards or
  - if not Tier 4, must be retrofit with highest level verified diesel emissions control strategy (VDECS)
- ◆ In-use CHE equipment must:
  - accelerate turnover of yard trucks to on-road engines, or Tier 4 final off-road standards
  - retrofit or replace non-yard truck equipment



# CHE Regulation Benefits

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- ◆ Reduce statewide diesel PM emissions from CHE by 85 percent and NO<sub>x</sub> by 75 percent by 2020
- ◆ Proposed amendments maintain original rule goals
  - controlled diesel PM and NO<sub>x</sub> emissions for 2012 – 2020 below levels anticipated with original rule analysis

# Implementation Proceeding

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- ◆ Use of cleaner technologies:
  - retrofits, repowers, and alternative fuels
  - demonstration – hybrid rubber-tired gantry crane
  - development – electric, H<sub>2</sub> fuel-cell hybrid electric, and hybrid yard trucks
- ◆ Significant emissions reductions
- ◆ Identified opportunities to improve regulation

# Proposed Amendments



**Yard Truck**



# Purpose of Proposed Amendments

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- ◆ Based on implementation experience:
  - provide additional compliance flexibility
  - maintain anticipated emissions reductions
  - clarify language



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# Implementation Issues

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- ◆ VDECS not available for some equipment
- ◆ Some specialty equipment used infrequently
- ◆ Tier 4 Family Emission Limits not sufficiently stringent
- ◆ Encourage best maintenance practices
- ◆ Request for rural, low-use port exemption

## Provide Additional Flexibility

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- ◆ Specialty and “No VDECS Available” Equipment
  - provide limited low-use compliance extension
  - provide further extensions if “No VDECS Available”
  - allow limited non-yard truck equipment transfers
- ◆ Cleaner technologies
  - allow demonstration of emission equivalency for alternative technologies
  - allow experimental extensions to generate data for verification

# Maintain Anticipated Emissions Reductions

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- ◆ Require retrofit of Tier 4 engines certified to Family Emission Limits (FEL) Alternate PM emissions standards
- ◆ Initiate CHE opacity-based monitoring program

# Opacity-Based Monitoring Program

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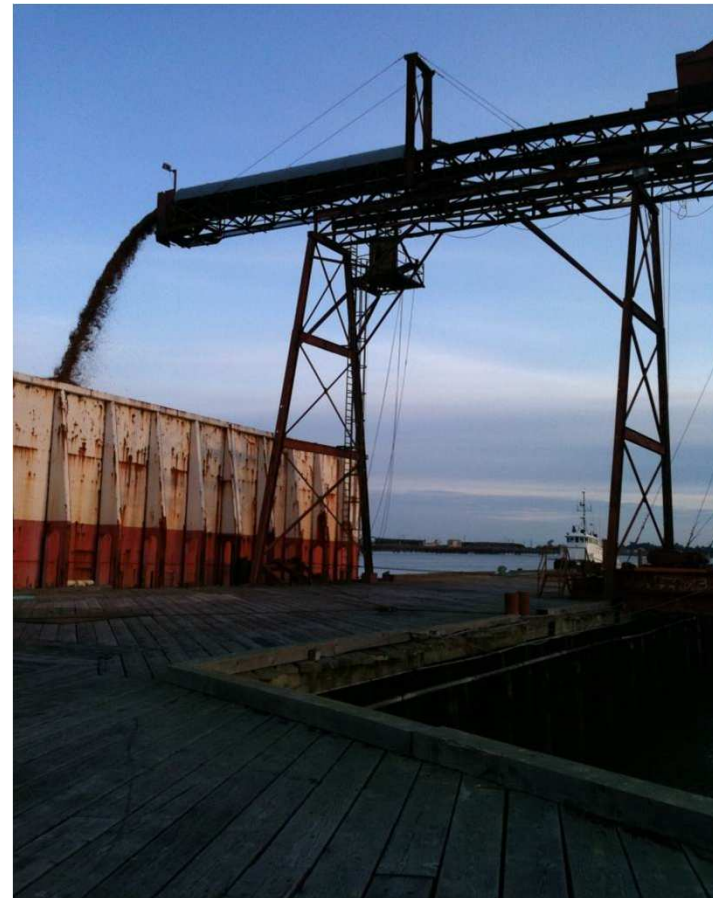
- ◆ Similar to ARB's heavy-duty diesel vehicle smoke inspection program
- ◆ Phase-in annual opacity testing of engine-out exhaust
- ◆ Opacity limits
  - based on ARB empirical correlation
  - retrofitted engines: as required by retrofit manufacturers
- ◆ Retrofitted equipment
  - schedule when VDECS removed for cleaning or inspection



# Rural Small Port Exemption

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- ◆ Port of Humboldt Bay only port eligible
  - low annual throughputs - receives one to two chip or log barges per month
  - less than 20 pieces of equipment total
  - surrounded by low population density
  - requested by local air district



# Clarify Language

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- ◆ Definitions
  - Modify existing definitions to clarify intent
  - Add new definitions to support other amendments
- ◆ Clarifying language



# Impacts



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# Environmental Impacts

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- ◆ Benefits of regulation maintained
  - 5 percent more reductions in diesel PM emissions
  - slight (2 percent) change in NO<sub>x</sub> benefits
- ◆ Monitor emissions impacts:
  - reporting/recordkeeping
  - off-road model

# Economic Impacts

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- ◆ Amendments result in both costs and savings
- ◆ Statewide net savings of \$1 – 2 million
- ◆ Cost-effectiveness of the regulation remains unchanged



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# Proposed 15-Day Changes

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- ◆ Incentivize purchase of electric and hybrid equipment
  - allow yard trucks (including hybrid and electric) in Alternative Compliance Plans
  - allow 3<sup>rd</sup> or 4<sup>th</sup> year of “No VDECS Available” extension if agree to replace with electric or hybrid, if feasible
- ◆ Restrict dirtiest engines from receiving 3<sup>rd</sup> or 4<sup>th</sup> year of “No VDECS Available” extension
  - engines without VDECS due to high opacity not eligible
- ◆ Require all other eligible equipment compliant before low-use compliance extension allowed
- ◆ Exempt newer equipment from opacity monitoring

# Future Activities

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- ◆ Continue to monitor application of:
  - CHE retrofit technologies
  - on-road engines in yard trucks
- ◆ Hold periodic technical meetings
- ◆ Conduct assessment of ultra-clean technologies



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# Summary

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- ◆ Proposed amendments provide additional flexibility while maintaining emission benefits of original regulation
- ◆ Net economic impact is small cost savings

# Recommendations

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- ◆ Recommend the Board adopt the proposed amendments to the current CHE regulation with proposed 15-day changes
- ◆ Direct staff to continue to monitor use of clean technologies