

# Union Pacific Railroad Community Meeting Diesel Particulate Matter Mitigation Plan for the Oakland Railyard Oakland, CA December 9, 2008



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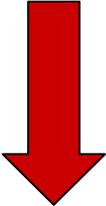


# Agenda

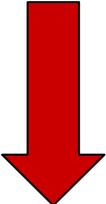
- Emissions Trends Summary
- System and Facility Overview
- 2005 Baseline Inventory
- Current and Proposed Mitigation Measures
  - **We need your help to identify additional ideas for potential emissions reductions**
- Emission Trends – Past and Future
- Evaluation of Mitigation Measures

# Emission Trends – DPM Reductions from 2005 Baseline

- 2005 to 2007

 **DOWN 25%**

**Projected to 2020**

 **DOWN 71%**

# Union Pacific System Overview



## Fast Facts

### • Miles of Track

- 32,300 in 23 States
- 3,455 in California
- 1,272 in Los Angeles area

### • Employees

- 50,000+ in US
- 5,900 in California

# Facility Overview

- **100+/- Acres for Cargo Handling**
- **Yard Includes:**
  - Receiving Tracks
  - Tracks Used to Maintain or Repair Rail Cars or Locomotives (Light Repair)
  - Tracks Used to Load and Unload Containers From Rail Cars, and for Train Departures
- **Facility Operates 24 Hours a Day, 365 Days a Year**
- **About 20 Trains a Day Operate Through or Originate / Terminate at UP's Oakland Yard**
- **2 Onsite Truck Distribution Centers Operated by Pacific Coast Containers (PCC)**

# 2005 Baseline Emissions Inventory

<b>Equipment Category</b>	<b>DPM Emissions (tpy)</b>
<b>Locomotives</b>	<b>3.9</b>
- <i>Line Haul</i>	<b>1.6</b>
- <i>Switch</i>	<b>1.9</b>
- <i>Service/Maintenance</i>	<b>0.5</b>
<b>Cargo Handling Equipment</b>	<b>2.0</b>
<b>Diesel Drayage Trucks-Intermodal</b>	<b>1.7</b>
<b>Diesel Drayage Trucks-Distribution Centers</b>	<b>0.2</b>
<b>Diesel-Fueled Heavy Equipment</b>	<b>0.2</b>
<b>TRUs and Reefer Cars – Intermodal</b>	<b>1.4</b>
<b>TRUs and Reefer Cars – Distribution Centers</b>	<b>1.8</b>
<b>TOTAL</b>	<b>11.2</b>

# Current UP Emission Reduction Measures

- **Continued Aggressive Acquisition & Use of Tier 2 Road Locomotives With Advanced Emission Controls**
  - 1,189 Tier 2 Locomotives thru October 2008
  - 5,500+ Tier 0, 1, or 2 Locomotives in the Fleet
- **Continued Remanufacture of Older Locomotives With New, Lower Emitting Components**
  - 2,000 Units Since 2000
- **Expanded Use of Technologically Advanced Switch Locomotives**



# Current UP Emission Reduction Measures, Cont.

- **Increased Use of Idle Control Devices (ICD's) for Auto Start-Stop of Locomotives**
  - 100% of CA Intrastate Units Equipped
  - 35% of UPRR Total Fleet
  - All New Locomotives Since 2001 Have Factory ICD's
- **Supported research and development efforts**
  - UPRR has invested > \$37M in locomotive R&D since 1989
- **Aggressive Conservation = Lower Emissions**
  - A 12% improvement in fuel efficiency achieved since 1995

# Current UP Emission Reduction Measures, Cont.

- **Use of cleaner fuels – only Ultra Low Sulfur Diesel (ULSD) is dispensed in CA**
- **Cleaner Cargo Handling Equipment (CHE)**
  - **By the end of 2007, retired 4 pieces of higher-emitting equipment (1 RTG, 2 backhoes, 1 forklift).**
  - **In 2008, 2 additional units (1 RTG, 1 Trackmobile) were retired and replaced with new, cleaner units. A VDECS will be installed on each new unit in 2009.**
- **Employee Training**
  - **Fuel Conservation Via Use of Simulators**
  - **Locomotive Shutdown Procedures**
  - **Visible Emissions**

# Proposed Future Emission Reduction Measures

- **Continued acquisition of Tier 2 locomotives and newer technology (i.e. Tier 3 and 4) when available**
- **Continued remanufacture and retrofit of older line haul locomotives with lower emitting components**
- **Continued support of locomotive research and development efforts**
- **Continued Aggressive Employee Training**
  - **Fuel Conservation Via Use of Simulators**
  - **Locomotive Shutdown Procedures**
  - **Visible Emissions**

# Proposed Future Emission Reduction Measures, Cont.

- **Cleaner CHE**

- By the end of 2010, all pre-2000 model year CHE at the yard will be replaced, repowered, or retrofitted with VDECS to meet the requirements of the CHE Rule.

- **Cleaner drayage fleet**

- Natural fleet turnover
- CARB's proposed drayage truck regulation

- **Cleaner TRUs**

- Beginning in 2008, TRUs operating at Oakland will be required to meet lower emission standards. Standards are further reduced in 2010.

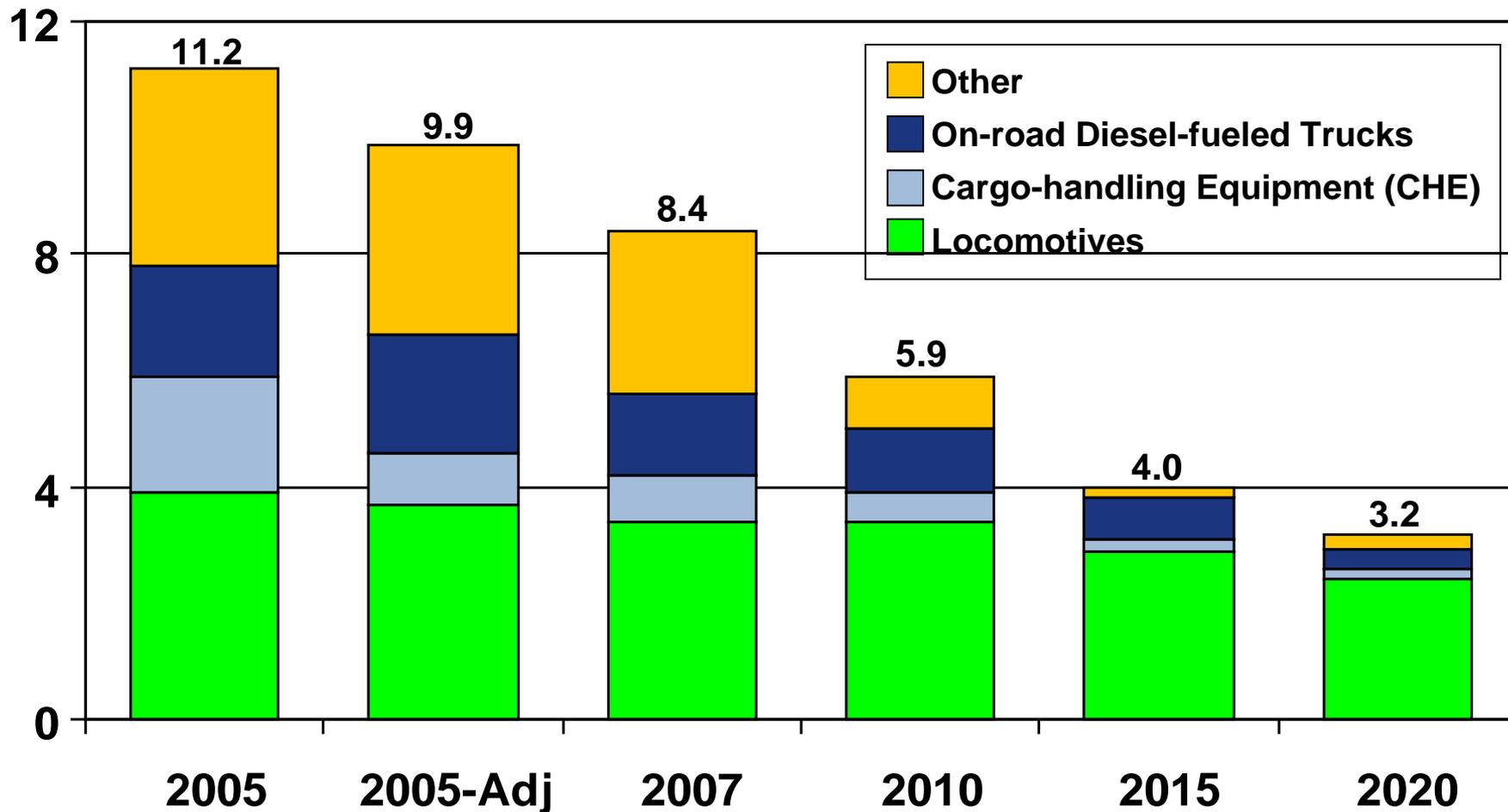
# Summary of Reductions by Source

Equipment Type	2005	2007	2010	2015	2020
Line Haul Locomotives	Fleet is Continuously Being Improved				
Genset Switchers, % of Total	Fleet is Continuously Being Improved				
Cargo Handling Equipment % of Total Upgraded	37 Units 0%	4 of 37 11%	15 of 37 41%	37 of 37 100%	NA 100%
Drayage Trucks	Truck Owners Must Comply with CARB's Drayage Truck Rule, and/or other appropriate State and Federal Regulations				
TRUs and Reefer Cars	TRU Owners Must Comply with CARB's Airborne Toxic Control Measure (ATCM) for TRUs				

Note: UPRR does not own or operate the drayage trucks and/or TRUs and reefer cars.

# DPM Emissions by Source (Calendar Years 2005-2020)

Emissions (Tons / Year)



# Criteria for Evaluation of Mitigation Measures

- **Safe**
- **Technologically Feasible**
- **Consistent w/ Legal Requirements (i.e. – FRA)**
- **Operationally Feasible**
- **Cost Effective**
- **Other Yard Specific Considerations**

# What has UPRR Done to Reduce DPM Emissions from Our Operations

- **Continuing Research and Development**
  - Since 1989, UPRR has invested more than \$37M in locomotive research and development
  - Several ongoing initiatives will continue to keep both UPRR and rail at the forefront as the most environmentally friendly and efficient means of overland goods transportation

**Result is the most comprehensive & aggressive program of identification, evaluation, development, acquisition, deployment, optimization, & utilization of new & evolving technologies of any RR in No. America**

THE ROAD TO THE FUTURE ISN'T A ROAD AT ALL.

