Union Pacific Railroad
Community Meeting
Air Resources Board Health Risk Assessment
City of Industry Yard

Industry, CA

March 11, 2008

Lanny Schmid, Director – Environmental Operations
UPRR COI Yard

• Facility Overview

• Sources of Emissions

• Comparison with Air Basin and Other Area Emissions

• Emission Reduction Measures

• Emission Trends – Past and Future
Union Pacific System Overview

South Coast is a Major Gateway

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
  - 5,860 in California
  - 1,900 in Los Angeles area
UPRR COI Yard
Facility Overview

• 100+ Acre Cargo Handling Facility

• Yard Includes:
  – Receiving Tracks
  – Tracks Used to Maintain or Repair Rail Cars or Locomotives (Light Repair)
  – Tracks Used to Load and Unload Containers or Trailers 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 COI Yard
City of Industry Area Yards
Comparison with Other Sources of DPM Emissions

99%
All Other South Coast Basin Sources

<1%
City of Industry Area Sources

72%
Other City of Industry Area Sources

28%
City of Industry Rail Yard

Total DPM Emissions – All South Coast Sources: 7750 tons per year
UPRR City of Industry Yard
Sources of Diesel Particulate Matter (DPM) Emissions

- 54% Locomotives
- 25% Cargo-handling Equipment
- 18% On-road Diesel Trucks
- 3% Other

Total DPM Emissions – UPRR City of Industry Yard: 10.9 tons per year
UPRR City of Industry Yard
DPM Emissions by Source (Calendar Years 2000-2020)

Emissions (Tons / Year)

- **Other**
- **On-road Diesel-fueled Trucks**
- **Cargo-handling Equipment (CHE)**
- **Locomotives**

<table>
<thead>
<tr>
<th>Year</th>
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<td>2000</td>
<td>8.4</td>
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<td>2005</td>
<td>10.9</td>
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<td>2010</td>
<td>7.3</td>
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<td>2015</td>
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UPRR City of Industry Yard
Emission Reduction Measures

• Increased Use of Idle Control Devices (ICD’s) for Auto Start-Stop of Locomotives
  – 126 of 130 (97%) of LASU Intrastate Fleet
  – 100% of CA Intrastate Units Equipped by June, 2008
  – 3,432 of 8,428 (41%) of UPRR Total Fleet
  – All New Locomotives Since 2002 Have Factory ICD’s

• Aggressive Fuel Conservation Efforts – Since 1995
  – 14.7% Improvement in Fuel Efficiency
  – 25% Increase in Cargo Tonnage
UPRR City of Industry Yard
Emission Reduction Measures

• Modernizing Cargo-handling Equipment
  – Replace/Upgrade 12 Pieces of Equipment in Next 5 Years
  – Includes 4 Major Items (RTG’s or Top Picks)

• Continued Acquiring of New Transportation Refrigeration Units (TRUs) As Fleet Is Upgraded

• Use of ULSD Diesel – 100% Since 2006

• Continued Aggressive Employee Training
  – Conserving Fuel Via Use of Simulators for New Hires / Refresher
  – Locomotive Shutdown (75+ at COI; 1,550+ at LASU)
  – Visible Emissions (2 at Commerce; 7 at LASU)
UPRR City of Industry Yard
Emission Reduction Measures

• Continued Aggressive Acquisition & Use of Tier 2 Road Locomotives With Advanced Emission Controls
  – 995 Tier 2 Locomotives by July, 2008;
  – 2,600+ Tier 0, 1, or 2 From 2000 Thru 2006

• Continued Remanufacture of Older Locomotives With New, Lower Emitting Components
  – 1,800 Units Since 2000

• Annual In-use Testing

• Retired 1,700 Older Units

• Tier 2 Equivalent in South Coast by 2010
UPRR City of Industry Yard
Emission Reduction Measures

• Ultra Low Emitting Locomotives (ULEL’s)
  – Reduce NOx & PM Emissions by +/- 85%
  – Reduce Fuel Consumption by 16 to 37%

• Expanded Use of Technologically Advanced Switch Locomotives
  – Gensets - 11
    Assigned COI
  – Gensets - 61
    Now in the Basin
  – Green Goats - 10
    Now in the Basin
Emission Reduction Measures - Switchers
UPRR City of Industry Yard
Emission Reduction Measures

- Use of Remote Locomotive Diagnostics to Reduce Test & maintenance Time for Locomotives, Where Applicable
- Develop & Implement Changes to Streamline Operations
  - Technological
  - Operational
- Systematically Evaluating Opportunities for Improving Performance that Result in Reducing Emissions
  - Operational Changes to Minimize Operation of Yard Locomotives
  - Practices for Use of Other Diesel-fueled Equipment
  - Reducing Waiting Time for Trucks Loading / Unloading at Rail Yards
UPRR City of Industry Yard
Emission Trends

• 58% Reduction From 2005 to 2020

• Overall 46% Reduction From 2000 to 2020, Including Growth

• 77% Reduction in DPM Emissions From 2005 to 2020 Per Ton of Cargo Handled
UPRR State & System-Wide
Recent Activity Update

• Completion of placement of the 71 ULEL’s in the basin
• Acquisition of another 175 Tier 2 road locomotives
• Continuing of upgrade of CHE/yard equip; activity is yard dependent
• Modification/aggressive retrofit of ICD’s on CA intrastate locomotives
• Extensive shutdown training for engineers
• Diligent follow-up on citizen complaints to resolve address concerns
UPRR State & System-Wide
Recent Activity Update

• Greater number of VE inspections w/ immediate repair; > 20,000 in 2007, w, >50% in this area

• Continuing upgrade of TRU’s

• Stronger aggressive conservation efforts such as Fuel Masters – a program that saved 20 million gallons of fuel on the UPRR in 2007

• Result is the most comprehensive/aggressive identification, evaluation, development, acquisition, deployment, optimization & utilization of new & evolving technologies of any RR in North America
THE ROAD TO THE FUTURE ISN’T A ROAD AT ALL.