Union Pacific Railroad
Community Meeting
Air Resources Board Health Risk Assessment
Colton Yard

Beaumont, CA

March 12, 2008

Lanny Schmid, Director – Environmental Operations
UPRR Colton 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

- 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 Colton Yard
Facility Overview

• 200+ Acre Classification Yard

• Yard Includes:
  – Receiving Tracks
  – Tracks Used to Sort Rail Cars by Destination
  – Tracks Used to Maintain/Repair Rail Cars or Locomotives

• Facility Operates 24 Hours a Day, 365 Days a Year

• About 50 Trains a Day Operate Through or Originate / Terminate at UP’s Colton Yard
Colton Yard
Comparison with Other Sources of DPM Emissions

99% All Other South Coast Basin Sources

<1% Colton Area Sources

73% Other Colton Area Sources

27% Colton Rail Yard

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

Total DPM Emissions – UPRR Colton: 16.5 tons per year
UPRR Colton Rail Yard
DPM Emissions by Source (Calendar Years 2000-2020)

Emissions (Tons / Year)

<table>
<thead>
<tr>
<th>Year</th>
<th>Other</th>
<th>On-road Diesel-fueled Trucks</th>
<th>Locomotives</th>
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<td>2000</td>
<td>17.2</td>
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<tr>
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<td></td>
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<td>2010</td>
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<td>15.0</td>
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<td>2015</td>
<td></td>
<td>14.8</td>
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<td>2020</td>
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<td>13.4</td>
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UPRR Colton 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 Colton Yard
Emission Reduction Measures

• Use of ULSD Diesel – 100% since 2006
• Continued Aggressive Employee Training
  – Conserving Fuel Via Use of Simulators for New Hires / Refresher
  – Locomotive Shutdown
    • 770+ at Colton
    • 1,550+ on the Los Angeles Service Unit
  – Visible Emissions
    • 3 EPA Method 9 Certified Individuals at Colton
    • 7 EPA Method 9 Certified Individuals at LASU
    • 2 Opacity Meters at Colton
UPRR Colton 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 2008

• 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 the South Coast by 2010
ULPRR Colton 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 Colton
  – Gensets - 61
     Now in the Basin
  – Green Goats - 10
     Now in the Basin
Emission Reduction Measures - Switchers
UPRR Colton 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 Colton Yard
Emission Trends

• 4% Reduction From 2000 to 2005 (ARB Baseline Year)

• 19% Reduction From 2005 to 2020

• Overall 22% Reduction From 2000 to 2020, Including Growth
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.