Union Pacific Railroad (UP) Initial Draft
Diesel PM Mitigation Plan for the ICTF/Dolores Railyards

California Environmental Protection Agency
Air Resources Board

November 12, 2008
Overview of Meeting

- ARB
  - Background on the UP ICTF/Dolores railyard health risk assessment
  - Process for the development of draft railyard mitigation plans
  - Explain existing locomotive and railyard regulations and agreements

- UP
  - Present initial draft railyard mitigation plan for UP ICTF/Dolores railyards
  - Discuss next steps to identify and discuss additional mitigation measures

- Community members encouraged to discuss and provide comments
Background

- This effort is part of our commitment to address pollution impacts on communities
  - ARB Goods Movement Plan
    - Reduce risks by at least 85 percent by 2020
  - ARB/UP/BNSF Railroad Agreement
    - Reduce exposure to toxic diesel PM as quickly as possible
- Railyard health risk assessments
  - 18 railyard health risk assessments finalized by July 2008
Railyard Mitigation Plan Process

- Railroads prepare initial draft railyard mitigation plans
  - Pursuant to the 2005 Agreement
- ARB provides technical review of draft plans
  - No ARB endorsement or approval of the draft plans
- Public meeting to discuss the draft plans and additional mitigation measures
- Revise the plans based on public comments
- UP finalizes the plans
Existing Control Measures

- **Locomotives:**
  - Statewide Railroad Agreement (2005)
  - ARB Diesel Fuel Regulation of Intrastate Locomotives (2007)
  - 1998 South Coast Locomotive NOx Fleet Average Agreement (2010)

- **Non-Locomotives:**
  - ARB Cargo Handling Equipment Regulation (2007)
  - ARB On-Road Heavy Duty Diesel Truck Regulation (2007)
  - ARB Port and Intermodal Railyard Truck Regulation (2010)
  - ARB ATCM for Transport Refrigeration (2010)
  - ARB Tier-4 Nonroad Diesel-Fueled Emission Standards (2011-15)
  - ARB’s Proposed Existing Private Truck Fleet Regulation (2010)
    - ARB Board will consider in December 2008
Statewide Locomotive DPM Emissions

Diesel PM Emission (TPD)

Baseline (without controls)

Baseline (with existing controls)\(^{1,2,3,4}\)

2008 EPA Rulemaking

1) 1998 US EPA Locomotive Rulemaking
2) 2005 ARB /Railroad Statewide Agreement
3) 1998 Locomotive NOx Fleet Average Agreement in the SCAB
4) 2007 CARB Diesel Fuel Regulation for Intrastate Locomotives
Distribution of 18 Railyard Diesel PM Emissions by Source Category

8 Intermodal Railyards DPM Emission Inventory (2005)
- Locomotives: 39%
- HDD Trucks: 26%
- TRUs: 11%
- Other: 2%
- Cargo Handling Equipment: 22%

10 Classification Railyards DPM Emission Inventory (2005)
- Locomotives: 96%
Diesel PM Emissions from 18 Railyards
(Assumes average 80% reduction by 2020)
UP ICTF/Dolores Railyards
UP ICTF/Dolores Railyards
Diesel PM Emissions

Year: 2005
- Off-road Vehicles & Equip.: 23.7 tons
- Cargo Handling Equipment: 11.8 tons
- On-road Diesel Trucks: 18.4 tons
- Locomotives: 5.4 tons

Year: 2007
- Off-road Vehicles & Equip.: 23.7 tons
- Cargo Handling Equipment: 11.8 tons
- On-road Diesel Trucks: 18.4 tons
- Locomotives: 5.4 tons

Year: 2010
- Off-road Vehicles & Equip.: 23.7 tons
- Cargo Handling Equipment: 11.8 tons
- On-road Diesel Trucks: 18.4 tons
- Locomotives: 5.4 tons

Year: 2016
- Off-road Vehicles & Equip.: 23.7 tons
- Cargo Handling Equipment: 11.8 tons
- On-road Diesel Trucks: 18.4 tons
- Locomotives: 5.4 tons
Health Risk Assessments: Estimating Health Effects

**Do:**
- Provide an estimate of the amount of a pollutant in the air
- Predict or estimate the lifetime cancer risk and other health impacts – in this case for diesel PM

**Don’t:**
- Actually measure amount of diesel PM in the air
- Gather/use health data on local residents
Estimated Potential Cancer Risks in 2005
# Local and Regional Diesel PM Sources

(tons per year in 2005)

<table>
<thead>
<tr>
<th>DPM Sources</th>
<th>Locomotives</th>
<th>Cargo Handling Equip.</th>
<th>On-Road Diesel Trucks</th>
<th>Off-Road Diesel Engines and Others</th>
<th>Total</th>
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<tr>
<td>South Coast Air Basin</td>
<td>300</td>
<td>5,000</td>
<td>2,000</td>
<td>5,000</td>
<td>7,800</td>
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<tr>
<td>Ports of LA/LB</td>
<td>20</td>
<td>170</td>
<td>40</td>
<td>1,570</td>
<td>1,800</td>
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<tr>
<td>UP ICTF/Dolores Railyards</td>
<td>9.8</td>
<td>4.4</td>
<td>7.5</td>
<td>2.0</td>
<td>23.7</td>
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</tbody>
</table>
UP ICTF/Dolores Railyards

Estimated Changes in DPM Cancer Risks by 2016
(from existing measures)

- **MICR** (Maximum Individual Cancer Risk)
  - **800** → **~ 180**

- **Exposed Population** (> 10 in a million)
  - **597,500** → **~ 84,500**
Summary

• Diesel PM public health risks are still too high in 2015
• The mitigation plan provides significant diesel PM emissions reductions from 2010 to 2015 and later
• However, still need to accelerate and provide more diesel PM emissions reductions
• ARB is preparing a technical document to evaluate:
  • Feasibility and costs of additional locomotive and railyard mitigation measures
  • Provide earlier and more locomotive and railyard emissions reductions
• Separate and complementary effort
• Evaluate potential strategies based on the following criteria:
  • Technical feasibility
  • Potential emission reductions
  • Costs and cost-effectiveness
  • Not intended to address implementation issues (i.e., legal, regulatory, agreement, funding)
• Hold public workshops and request comments
  Nov-Dec 2008
Contact Information
Comments and Questions

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- ARB Railyard HRA and Mitigation Plan Website
  - http://www.arb.ca.gov/railyard/hra/hra.htm