Draft ARB Health Risk Assessments for the UP ICTF/Dolores Railyards

March 18, 2008
Presentation Overview

- Meeting Purpose/Public Review Period
- Background
- Methodology for Preparing the Draft Assessments
- Results of the Draft Assessments
- Actions to Reduce Health Risks
- Next Steps
Purpose and Public Review

Purpose of meeting:
- Present draft analyses and explain results
- Initiate process for review and comment
- Explain emission reduction efforts underway

After tonight’s meeting:
- Opportunity for comments within 30 days
- Consultation to obtain your ideas on possible future emission reduction actions
# Health Risk Assessment Timelines

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Railyard</td>
<td>Railroad</td>
</tr>
<tr>
<td>Commerce/Eastern</td>
<td>BNSF</td>
</tr>
<tr>
<td>Hobart</td>
<td>BNSF</td>
</tr>
<tr>
<td>Richmond</td>
<td>BNSF</td>
</tr>
<tr>
<td>Stockton</td>
<td>BNSF</td>
</tr>
<tr>
<td>Watson</td>
<td>BNSF</td>
</tr>
<tr>
<td>Commerce</td>
<td>UP</td>
</tr>
<tr>
<td>LATC</td>
<td>UP</td>
</tr>
<tr>
<td>Mira Loma</td>
<td>UP</td>
</tr>
<tr>
<td>Stockton</td>
<td>UP</td>
</tr>
<tr>
<td>Sheila</td>
<td>BNSF</td>
</tr>
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</table>
**Background**

- **Part of our commitment to address pollution impacts on communities**
  - Implements the ARB Goods Movement Plan
  - Required by the ARB/UP/BNSF Railroad Agreement

- **State’s goals**
  - Reduce exposure to diesel PM as quickly as possible
  - Reduce risks by at least 85 percent by 2020
  - Obtain aggressive emission reductions needed to attain air quality standards
Purpose of the Assessments

- Identify pollution sources in the railyards
- Determine exposures to the public
- Estimate the health risks
- Put the railyard risks into perspective with other sources
- Provide information needed to reduce the risks
Scope of the Study

- Health impacts:
  - Baseline emission inventory
  - Air dispersion modeling
  - Health risk assessment for the railyard
  - Health risk assessment for significant diesel sources surrounding the community

- Focus on diesel PM - other toxics evaluated (TACs small relative to diesel PM)
UP ICTF and Dolores Railyard and one-mile off-site boundary
Railyard Emissions Inventory

Diesel PM Emission Inventory

- Locomotives (line-hauls, switchers, & services)
- On-road trucks & vehicles
- Cargo handling equipment
- Off-road equipment
- Stationary Sources (point & area)
### Summary of UP ICTF/Dolores Railyards 2005 Diesel PM Emissions

<table>
<thead>
<tr>
<th>Facility-wide Source Types</th>
<th>Tons per year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locomotives*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch Locomotives</td>
<td>5.6</td>
<td>24%</td>
</tr>
<tr>
<td>Line Haul Locomotives</td>
<td>3.0</td>
<td>13%</td>
</tr>
<tr>
<td>Service/Maintenance</td>
<td>1.2</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9.8</strong></td>
<td><strong>42%</strong></td>
</tr>
<tr>
<td>On-Road HHD Trucks**</td>
<td><strong>7.5</strong></td>
<td><strong>32%</strong></td>
</tr>
<tr>
<td>Cargo Handling Equipment</td>
<td>4.4</td>
<td>18%</td>
</tr>
<tr>
<td>Heavy Equipment and Transport Refrigeration Units</td>
<td>1.9</td>
<td>8%</td>
</tr>
<tr>
<td>Other and Stationary Sources</td>
<td>&lt; 0.06</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23.7</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

* Including off-site operations, 1.8 tons from flat switching activities within 0.5 miles from railyards.
** Including off-site operations, 1.6 tons from HHD trucks within 0.5 miles from railyards.
Non-Railyard DPM Emission Inventory
(within one-mile boundary)

- Focus on diesel PM sources
- On-road trucks and stationary sources
- SCAG* and EMFAC-2007 (mobile), CEIDARS** (stationary)

* Southern California Association of Governments
** California Emission Inventory Data and Reporting System
## Summary of Nearby Non-Railyards Diesel PM Emission Inventory

<table>
<thead>
<tr>
<th>Sources</th>
<th>Tons per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Heavy Duty Diesel Trucks</td>
<td>48</td>
</tr>
<tr>
<td>Stationary Sources</td>
<td>2.1</td>
</tr>
<tr>
<td>San Pedro Branch Rail Line</td>
<td>~0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50.6</strong></td>
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</tbody>
</table>
# Comparison of Local Diesel PM Sources with Regional Sources

(tons per year in 2005)

<table>
<thead>
<tr>
<th>Sources</th>
<th>Locomotive</th>
<th>Cargo Handling Equipment</th>
<th>On-Road Trucks</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Coast Air Basin</td>
<td>300</td>
<td>500</td>
<td>2,000</td>
<td>5,000</td>
<td>7,800</td>
</tr>
<tr>
<td>Port of LA/Long Beach</td>
<td>97</td>
<td>119</td>
<td>523</td>
<td>1,157*</td>
<td>1,900</td>
</tr>
<tr>
<td>UP ICTF/Dolores Railyards</td>
<td>9.8</td>
<td>4.4</td>
<td>7.5</td>
<td>1.9</td>
<td>23.7</td>
</tr>
<tr>
<td>Nearby Roadways</td>
<td>—</td>
<td>—</td>
<td>48</td>
<td>—</td>
<td>48</td>
</tr>
</tbody>
</table>

*Ocean going vessels and harbor craft
Estimated Health Risks

- Combine air dispersion modeling results with toxicity data to estimate health risks
- Determine risks for cancer and non-cancer effects
- Express results as “chances per million” for cancer and a “hazard index” for non-cancer impacts
- Toxicity based on the published data by the Office of Environmental Health Hazard Assessment (OEHHA)
Estimated Potential Cancer Risks

UP ICTF/Dolores Railyards
Estimated Cancer Risks

Estimated Average Cancer Risk (Chances in a Million)

Estimated Exposed Population Per Cancer Risk Range

> 500*: 697
250 - 500*: 344
100 - 250*: 153
50 - 100*: 69
25 - 50*: 34
10 - 25*: 15

* Cancer Risk Range (Chances in a Million)
Estimated Potential Cancer Risks

Non-Railyard Sources
Actions to Reduce Health Risks
Approach to Reducing Emissions

- **ARB regulations**
  - Fuels (CARB diesel fuel)
  - Cargo handling equipment
  - Transport refrigeration units
  - Heavy-duty diesel on-road trucks and off-road vehicles

- **Voluntary agreements**
  - 1998 South Coast Air Basin
  - 2005 Statewide

- **Railroad yard locomotive replacement program**

- **U.S. EPA regulation**
  - Locomotives

- **Funding programs**
  - Carl Moyer Incentives
  - Proposition 1B: Goods movement emission reduction program
Benefits of California Railyard Diesel PM Emission Reduction Measures

- **2005-2007**
  - CARB diesel fuel for intrastate locomotives
  - 2005 railyard agreement

- **2005-2010 (measures above plus)**
  - 1998 NOx locomotive fleet average agreement (in South Coast Air Basin)
  - ARB cargo handling equipment regulation
  - ARB on-road heavy-duty truck regulation
  - ARB transport refrigeration unit regulation
  - ARB port and intermodal railyard drayage truck regulation

\[ \approx 15-20\% \]

\[ \approx 50-65\% \]
Additional and Possible Measures

2005-2020:

- U.S. EPA locomotive regulation (March 14, 2008)
- California replacement of switch locomotives

≈65-80%
Next Steps

- Begin public comment period
- Review the draft assessments
- Submit written comments to ARB (by April 21)
- Meet with interested stakeholders
- Evaluate any additional feasible mitigation measures
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- ARB Railyard HRA Website:
  - http://www.arb.ca.gov/railyard/hra/hra.htm