CARE Program Update
West Oakland Activities

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Bay Area Air Quality Management District
CARE Task Force Meeting
December 12, 2007
Overview

• West Oakland Health Risk Assessment
  - Emissions & modeling status
  - Project schedule

• West Oakland Truck Traffic Survey
  - Work with the community
  - Project kick-off meeting (9/26/07)
  - Identifying survey locations

• West Oakland Measurement Study
  - EPA grant status
  - Project schedule
  - Establishing “reference” air quality station & meteorological measurement stations
West Oakland Health Risk Assessment

• Assessment focuses on diesel PM
• Based on emissions in 2005
• Three parts:
  – Part 1: Seaport -- Port of Oakland
  – Part 2: Union Pacific Rail Yard
  – Part 3: Sources in West Oakland not on Port property
• Estimates the amount of diesel PM in the air
• Estimates the potential lifetime cancer risk and other health impacts
West Oakland Health Risk Assessment Emission Domains
Emissions Inventory Overview
Year 2005 - tons per year (tpy)

Part 1 - Port of Oakland  261 tpy

Part 2 - UP Rail Yard    7 to 11 tpy

Part 3 – Other          627 tpy
(Major sources that may affect West Oakland)

TOTAL                    ~ 900 tpy
Part 1 – Port of Oakland Overview

Diesel PM Emissions Inventory

• Categories included:
  – Ocean-going vessels (OGV)  209 tpy
  – Harbor craft               13 tpy
  – Cargo handling equipment  21 tpy
  – On port diesel trucks     16 tpy
  – On port rail              2 tpy

• TOTAL                        261 tpy
Part 2 – UP Rail Yard

Diesel PM Emissions Inventory - pending

- Categories included:
  - Locomotives
  - TRU / refrigerator cars
  - Diesel trucks
  - Cargo handling equipment
  - Heavy off-road equipment
  - Stationary sources (generators)

- TOTAL ~ 7 to 11 tpy
Part 3 - Emissions Influencing West Oakland

Diesel PM Emissions Inventory

• Categories included:
  – Off-port harbor craft 278 tpy
  – Off-port OGVs 233 tpy
  – Freeways / roads 92 tpy
  – Construction 13 tpy
  – Off-port rail 5 tpy
  – Cargo handling equipment 4 tpy
  – Trucking / dist. centers 2 tpy
  – Stationary sources < 1 tpy

• TOTAL ~ 627 tpy

December 12, 2007
### Next Steps and Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Finalize inventory report</td>
<td>December 2007</td>
</tr>
<tr>
<td>Complete modeling</td>
<td>December 2007</td>
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<tr>
<td>Cancer &amp; non-cancer risk assessment</td>
<td>January 2008</td>
</tr>
<tr>
<td>Future risk (reflects growth in activity and effects of controls)</td>
<td>January 2008</td>
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<tr>
<td>Draft HRA released for public review</td>
<td>February 2008</td>
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<tr>
<td>Complete final HRA report</td>
<td>Early Spring 2008</td>
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West Oakland Truck Survey
Refine estimates of local truck traffic and idling

- Map West Oakland roadways
- Identify trucking routes
  - Field observations
  - GPS data
  - Satellite/aircraft images
- Count trucks & cars at fixed locations
  - Automated counters
  - Work with community on surveying
  - Count during winter & spring seasons
- Extrapolate counts to other locations
- Identify truck idling locations
- Refine estimates of diesel truck emissions
## West Oakland Truck Survey Draft Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Date</th>
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<tbody>
<tr>
<td>Meet with community members to discuss methods</td>
<td>January 2008</td>
</tr>
<tr>
<td>Draft protocol</td>
<td>January 2008</td>
</tr>
<tr>
<td>Define truck routes</td>
<td>February 2008</td>
</tr>
<tr>
<td>Start traffic counts</td>
<td>February 2008</td>
</tr>
<tr>
<td>Summer counts</td>
<td>June 2008</td>
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<tr>
<td>Estimate revised truck emissions</td>
<td>July 2008</td>
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December 12, 2007
Refine HRA Modeling for On-Road Trucks

• Use survey results to update diesel PM emissions estimates used for West Oakland HRA

• Refine HRA modeling for on-road trucks in Part 3

• Improve estimate of importance of trucks on local roadways to annual risk
West Oakland Measurement Study

- EPA Community Measurement Grant
  - Expect award letter by end of December
- Work with West Oakland Community and Port of Oakland
  - Define goals & establish measurement sites
- Increase density of air quality measurements in West Oakland via “saturation monitoring”
  - Characterize local-scale pollutant concentrations and gradients
- Intend to supplement with mobile measurements
Time-Integrated and Continuous Measurements

• Seven-day-average sampling at multiple sites
  – NOx, SO2, VOC, carbonyl compounds (passive sampling)
  – PM2.5 mass and organic & elemental carbon (active samplers)

• Continuous measurements at additional sites
  – VOC, PM2.5, black carbon, ultrafine particles
  – More expensive sampling at a few locations to provide hour-to-hour variations
Passive Adsorbent Sampler -- Example

Passive Adsorbent Sampler (PAS)

Allen et al, 2007
Measurement Study Status

• Establishing Reference station in West Oakland
  – EBMUD Office at Linden & West Grand
• Developing sites for meteorological measurements nearby
  – EBMUD Sewage Treatment Plant
• Work with Port and community members to establish
  – Additional Reference station
  – Passive sampling locations
Summary

• West Oakland HRA will identify cancer and non-cancer health risks from diesel PM for 2005 and future years
• Truck survey will provide refined on-road truck emissions
• Supplemental air quality measurements will help to evaluate modeling results and help characterize community health risks from toxic air contaminants