

Union Pacific Railroad (UP) Initial Draft Diesel PM Mitigation Plan for the Oakland Railyard

California Environmental Protection Agency



Air Resources Board

December 9, 2008

Overview of Meeting

- ARB
 - Background on the UP Oakland 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 Oakland railyard
 - 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

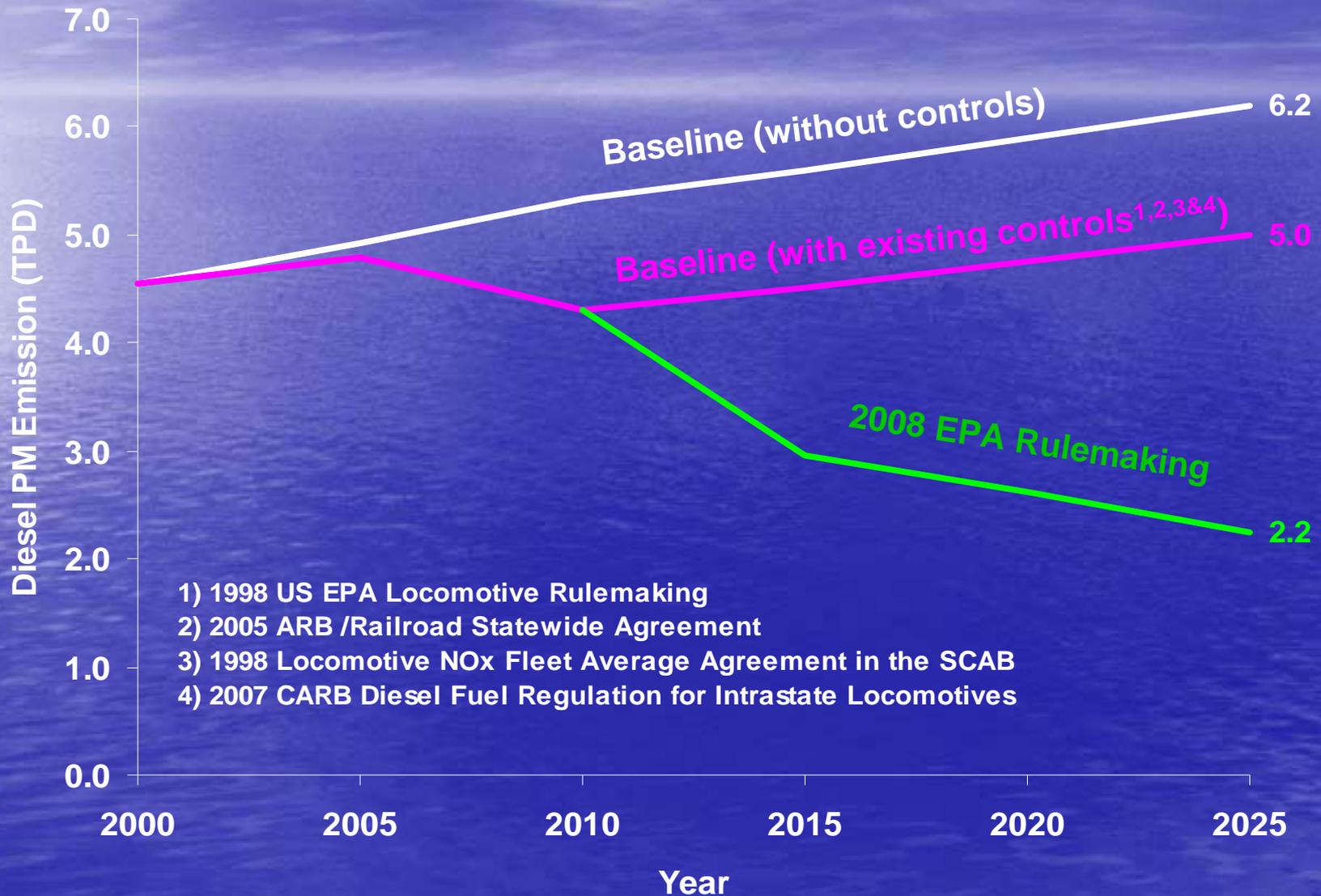
- **Locomotives:**

- Statewide Railroad Agreement (2005)
- ARB Diesel Fuel Regulation of Intrastate Locomotives (2007)
- U.S. EPA Locomotive Emission Standards (2008)
- 1998 South Coast Locomotive NO_x Fleet Average Agreement (2010)

- **Non-Locomotives:**

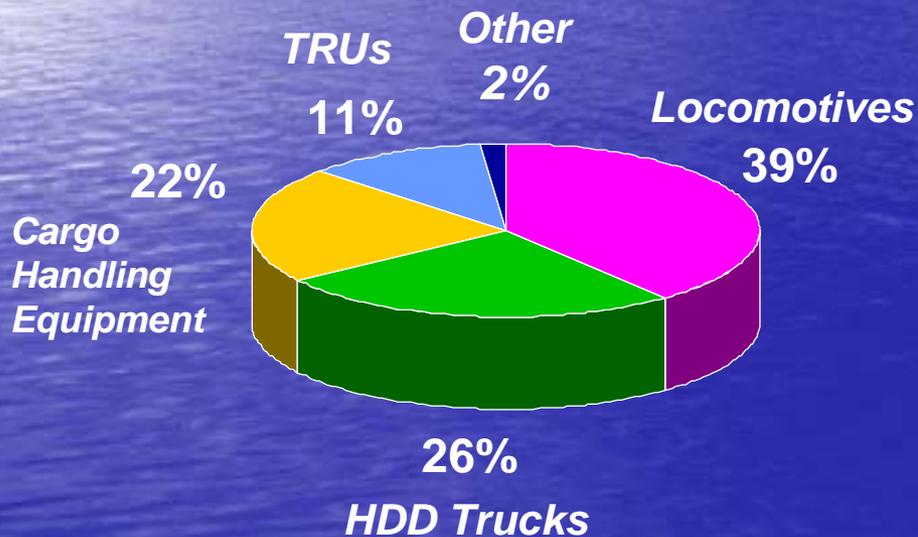
- ARB Cargo Handling Equipment Regulation (2007)
- ARB On-road Heavy Duty Diesel Truck Regulation (2007)
- ARB Port and Intermodal Railyard Truck Regulation (2010)
- ARB ATCM for Transport Refrigeration (2010)
- ARB Tier-4 Non-road Diesel-Fueled Emission Standards (2011-15)
- ARB's Proposed Existing Private Truck Fleet Regulation (2010)
 - ARB Board will consider Dec. 2008

Statewide Locomotive DPM Emissions



Distribution of 18 Railyard Diesel PM Emissions by Source Category

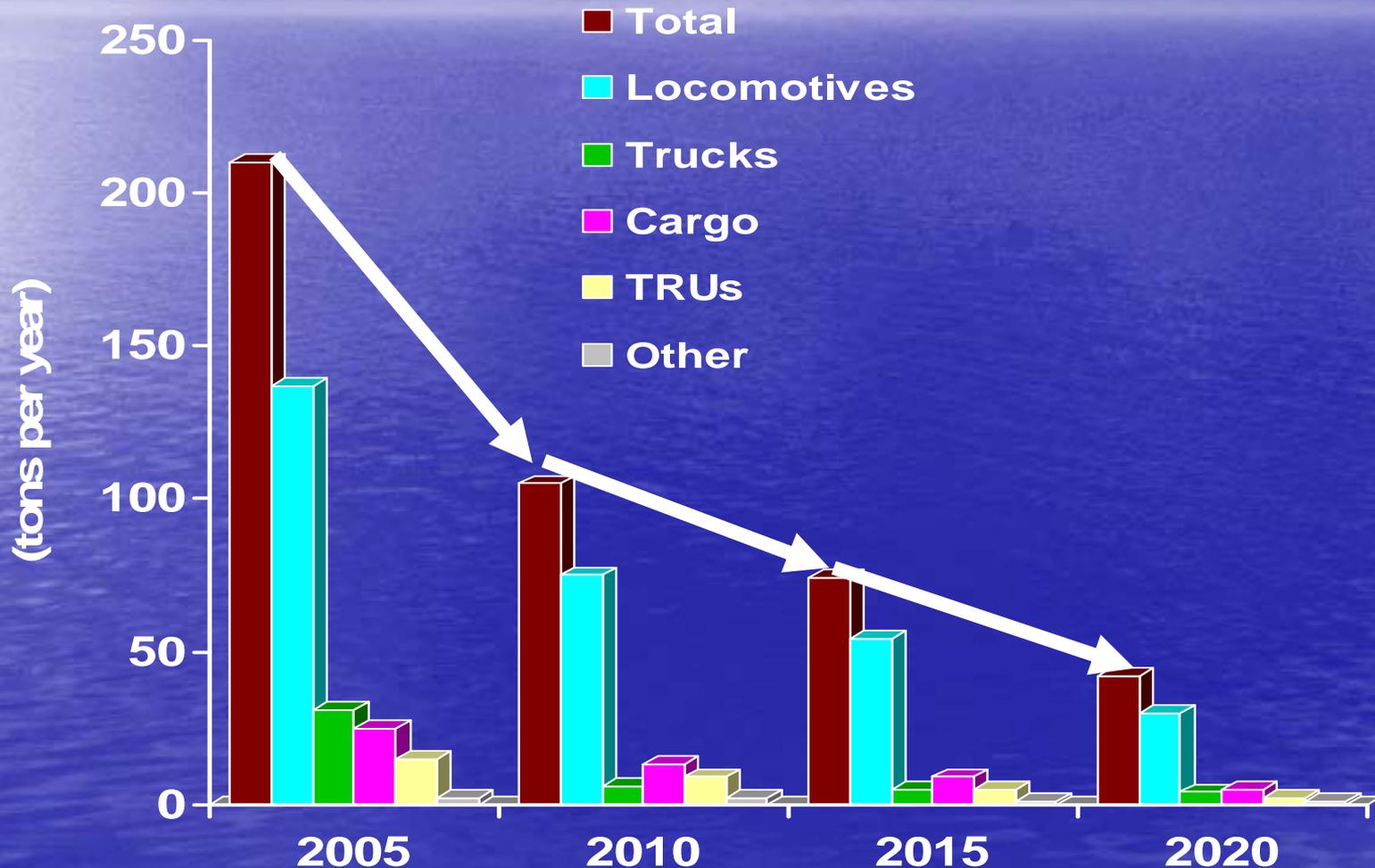
8 Intermodal Railyards DPM Emission Inventory (2005)



10 Classification Railyards DPM Emission Inventory (2005)



Diesel PM Emissions from 18 Railyards (Assumes average 80% reduction by 2020)

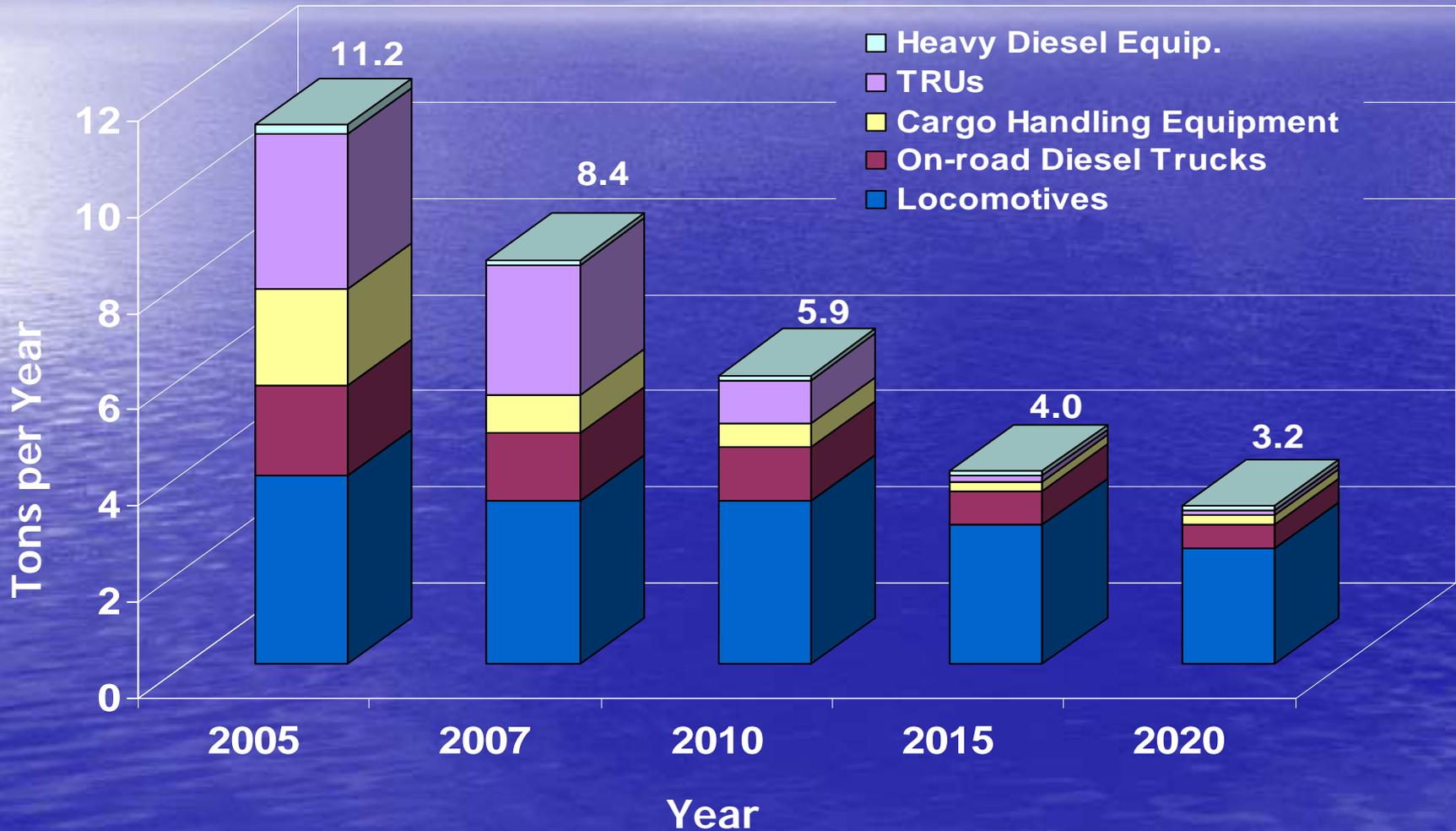




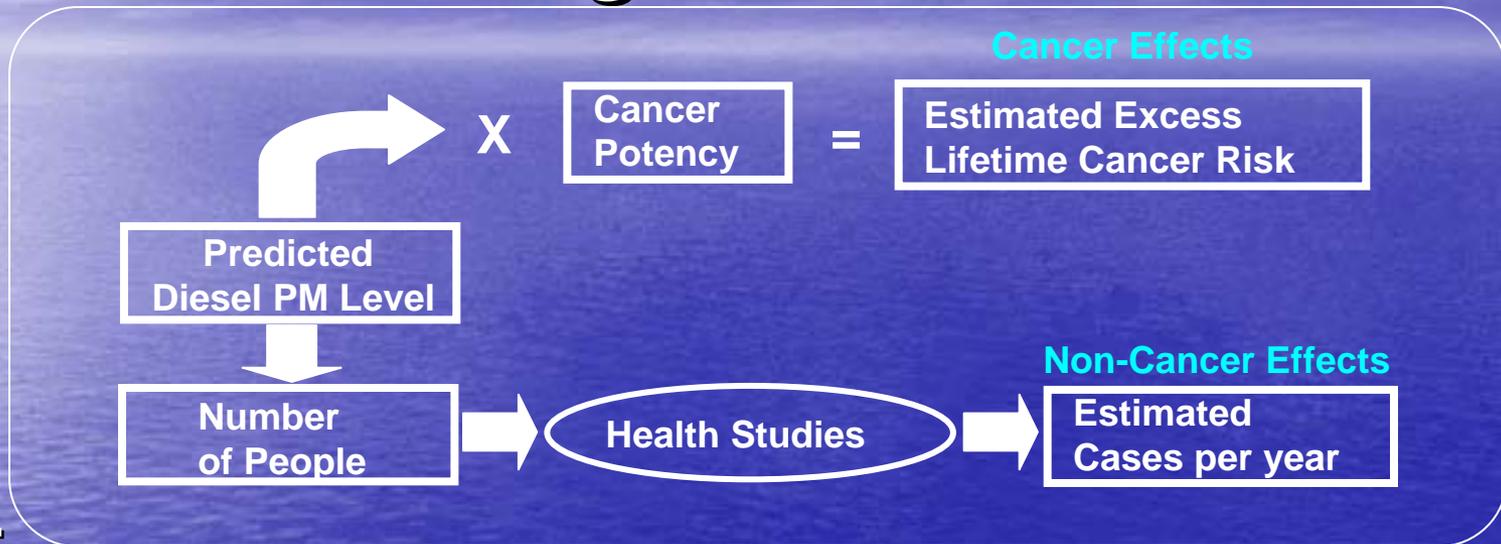
UP Oakland Railyard



UP Oakland Railyard Diesel PM Emissions



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)

DPM Sources	Locomotives	Cargo Handling Equip.	On-Road Diesel Trucks	Off-Road Diesel Engines and Others	Total
Bay Area air Basin	120	33	1,055	2,465	3,673
Port of Oakland (I)*	2**	21	20	222	265
UP Oakland Railyard (II)*	3.9	2.2	1.9	3.4	11.2
Other West Oakland (III)*	1.3	4.3	84	490	580

* Sub-Areas of West Oakland Community HRA Study

** BNSF OIG

UP Oakland Railyard

Estimated Changes in DPM Cancer Risks (from existing measures)

- MICR (Maximum Individual Cancer Risk)



- Exposed Population (> 10 in a million)



Summary

- Diesel PM public health risks are still high
- The mitigation plan provides significant diesel PM emissions reductions from 2010 to 2015 and later
- ARB is preparing a technical document to identify and evaluate possible options for earlier and more diesel PM reductions

ARB Technical Evaluation Document

Strategies to Accelerate and Further Reduce Railyard and California Statewide Locomotive Emissions

- Separate and complementary effort
- Evaluation of 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 - Jan 2009

Contact Information

Comments and Questions

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