Public Consultation Meeting
Regulatory and Non-Regulatory Fuels Activities

March 17, 2005

California Environmental Protection Agency

Air Resources Board
Agenda

✧ Introduction

✧ Topics (presentation by ARB and Others):
  › Gasoline
    • CaRFG3 Predictive Model Update
    • Permeation Emissions Estimate
    • Test Methods
    • CARBOB Model Validation
  › Diesel
    • Lubricity
    • Biodiesel
  › Marine Vessels Activities

✧ Other Topics?

✧ Open Discussions

✧ Closing Remarks
Topics:
Gasoline
CaRFG3 Predictive Model Update

DataFrame Availability

- Alliance of Automobile Manufacturers
- CRC E67 Study conducted by CE-CERT, UC Riverside
  - Objective: effects of gasoline volatility parameters and ethanol content on exhaust emissions for the newest technology vehicles
  - Engine tests completed
  - Compiling data
  - Data availability expected in a month or so
Permeation

- In 1999, ARB staff learned that ethanol in gasoline increases evaporative emissions through a process known as permeation.
- Permeation is when fuel migrates through the soft fuel system found on motor vehicles.
- At the 1999 Hearing, the Board directed staff to conduct permeation study and report back.
Permeation Test Program

- In 2002, the CRC and ARB co-funded permeation study

- Results:
  - Ethanol fuel higher than MTBE on all vehicles and higher than non-oxy on almost all vehicles
  - 65% or 1.4 grams/day more than MTBE gasoline
  - 45% or 1.1 grams/day more than non-oxygenated gasoline
Permeation Emissions Increase

- Study results do not directly provide the emissions impact of permeation
- Vehicle activity and fuel temperature data must be integrated to provide an appropriate temporal and spatial distribution of emissions
- Estimated on-road vehicles hydrocarbon emissions increase by 40-50 tpd, statewide 2004
- Recent posting: www.arb.ca.gov/fuels/gasoline/permeation/permeation.htm
How to Deal with the Hydrocarbon Emissions Increase from Ethanol Use?

- Hydrocarbon emissions increase well into the foreseeable future
  - New vehicle standards help
  - Slow turn over of fleet

- Report back to the Board later this year
  - Better estimate of ethanol permeation impact on emissions
  - Measures to mitigate the impact
What’s Next

- The CRC is proceeding with a second stage of the test program
- Two additional vehicles: LEV II and PZEV
- Two additional fuels: 10% ethanol and a higher aromatics fuel
- E-85 will also be tested on an flexible fueled vehicle
Test Methods
CARBOB Model Validation

- All refiners sent their data
- Some incomplete / missing data
  - Ethanol content
  - Information on blending properties (e.g., RVP)
- Work in progress
- Expected to complete this summer
Topics:
Diesel
Diesel Fuel Lubricity

- Lubricity standard May 1 implementation update

- CRC diesel lubricity test program
Implementation Update

- Installation of terminal injection equipment proceeding in preparation for May 1 implementation date
- Implementation at San Jose terminal delayed due to permitting issues - may be one month late
- No other known problems
CRC Diesel Performance Group
Lubricity Test Program

✦ Test program to correlate fuel lubricity measurements to light duty diesel fuel injection equipment wear
  – Two fuel lubricity measurement tests
  – Three equipment types

✦ Southwest Research Institute selected as test laboratory for the program

✦ Test fuels have been designated

✦ Working on acquiring test equipment and control units
Topics:
Marine Vessels Activities
Other Topics?
Open Discussions
Closing Remarks