































# Multimedia Working Group Responsibilities

- ARB – Lead agency, evaluate air quality impacts
- SWRCB – Assess surface water and groundwater impacts
- OEHHA – Evaluate potential public health impacts
- DTSC – Evaluate potential soil and hazardous waste concerns

# Evaluation Uses Rigorous Scientific Process

- Follows guidance document developed by University of California
- Multimedia evaluation looks at impacts associated with:
  - Emissions of air pollutants
  - Contamination of surface water, groundwater, and soil
  - Disposal or use of byproducts and waste materials
- Three tier process:
  - Tier 1 – Literature review to identify data gaps
  - Tier 2 – Test program to fill in data gaps
  - Tier 3 – Compilation and summary of data































# Air Quality Conclusions

- Viscon additive use reduces emissions and health risk from PM in diesel exhaust
- Air quality effects of the additive, either alone or additized, are expected to be less than or equal to CARB diesel













# Properties

- Viscon additive is a blend of 99% CARB diesel with 1.0% polyisobutylene (PIB)
- Viscon-treated diesel contains 5ppm PIB
- Tier I report indicates PIB is “completely insoluble in water”
- Tier I reports indicates that PIB used in Viscon has an average molecular weight of about 7 million Daltons
- Tier I report states that PIB is FDA approved for food applications in amounts more than a 1000 times greater than the proposed use of the Viscon additive

# Analysis

- Material properties and lab testing suggest PIB is not likely to travel far in soil or groundwater or enhance ability of diesel to travel further in soil or groundwater
- Although material properties of PIB suggest that it may not be very biodegradable and therefore could affect the soil cleanup, it is unlikely to make any significant difference due to very low concentration of PIB to diesel













# Environmental Partitioning, Transport and Fate Analysis of Polyisobutylene (PIB)

- PIB release onto soil will bind tightly to soil particles
- Some resuspended particles will be deposited into surface water
- PIB will be transported to aquatic sediment
- Environmental breakdown of PIB is very slow
- PIB will accumulate in aquatic sediment































# Tests Completed by University of Georgia (UGA)

## Comparison:

Viscon-treated diesel vs. CARB diesel

- Biodegradation Test
- Soil column fate and transport test
- Final test report submitted by UGA

# DTSC's Conclusions

Based on the numbers in UGA test report and DTSC analyses

Comparing to CARB diesel:

- Biodegradation Test – No significant difference
- Fate and Transport Test – No significant difference
- Impact on Soil Cleanup – No negative impact

# Agenda

- Overview of Verifications & Multimedia Evaluations
- Individual Agency Staff Presentations
  - ARB
  - SWRCB
  - OEHHA
  - DTSC
  - Summary of Peer Review Comments
  - Recommendations
- Public Comments
- Council Consideration

# Summary of External Scientific Peer Review

# External Scientific Peer Review

- Review scientific portion of the evaluation based upon “sound scientific knowledge, methods, and practices”
- Institutions to conduct an external peer review:
  - University of California
  - National Academy of Sciences
  - Scientist or group of scientists of comparable stature and qualifications that is recommended by the President of the University of California

# External Peer Reviewers

## Peer Reviewers

- Yoram Cohen, Ph.D., Professor  
Dept. of Chemical and Biomolecular Engineering  
University of California, Los Angeles
- Miriam L. Diamond, Ph.D., Professor  
Dept. of Geography, Chemical Engineer, Applied Chemistry  
University of Toronto
- Terry Gordon, Ph.D., Professor  
Dept. of Environmental Medicine  
New York University Langone, Medical Center

# External Peer Reviewers Cont.

- Armistead G. Russell, Ph.D., Professor  
Civil and Environmental Engineering  
Georgia Institute of Technology
- Frank Gobas, Ph.D., Professor  
Biological Sciences, Resource and Environmental Management  
Simon Fraser University

# General Results

- Determined that MMWG conclusions and recommendations are based on sound scientific knowledge, methods, and practices
- Support overall finding that limited and controlled use of Viscon does not pose a significant adverse impact on public health or environment



# Agenda

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# Recommendations

Multimedia Working Group recommends that the CEPC:

- Approve Staff Report and individual evaluations by MMWVG
- Find that, based on multimedia evaluation Staff Report and Viscon verification application, there will not be a significant adverse impact on public health or the environment from limited use of Viscon additive

# Recommendations (cont.)

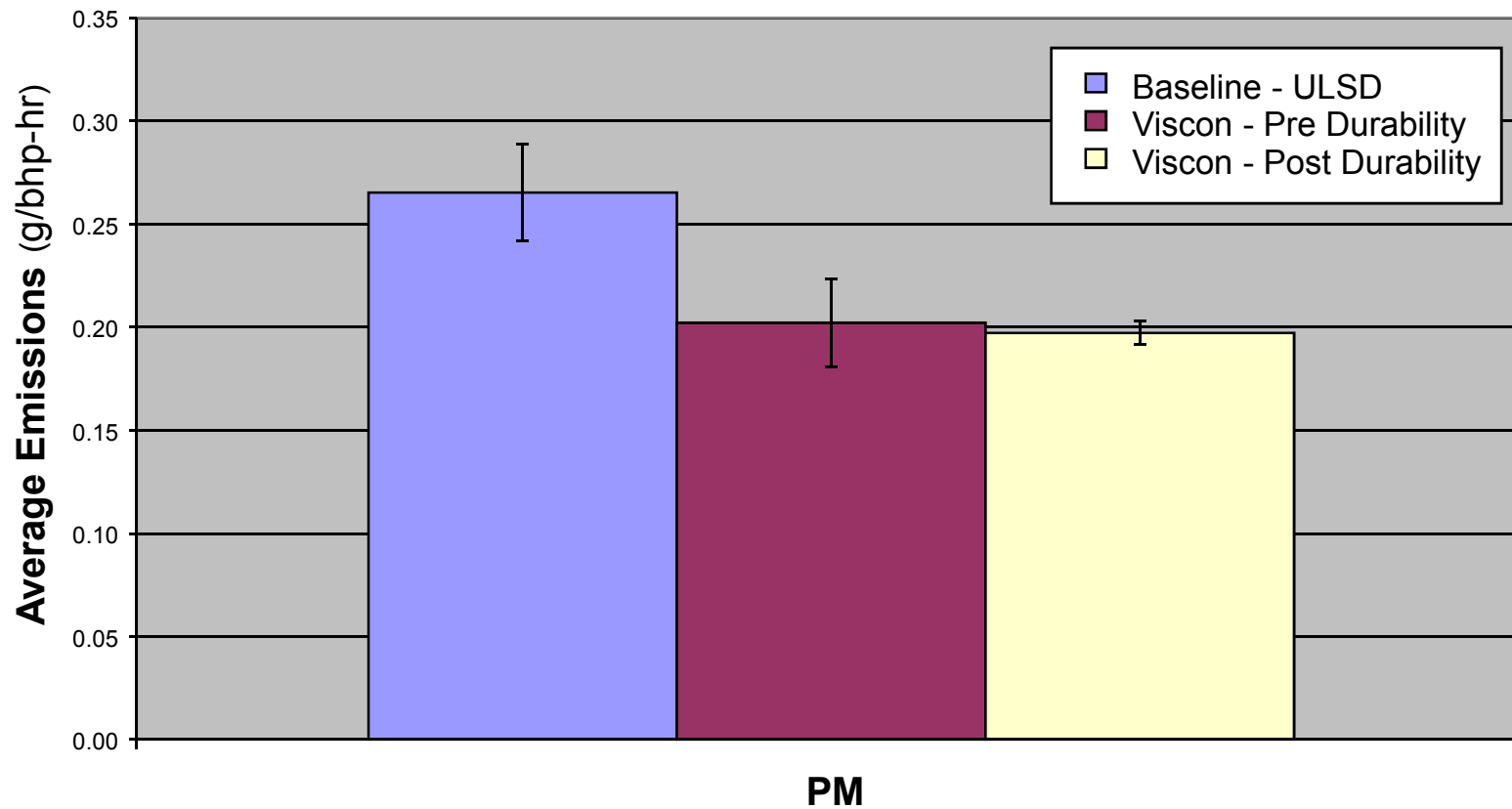
- Appropriate to require:
  - Viscon California, LLC to submit quarterly reports to MMWG for first year and annual reports thereafter:
    - CA and national sales of Viscon additive
    - CA and national sales of total Viscon-treated diesel fuel
    - Identification of end users in CA

# Recommendations (cont.)

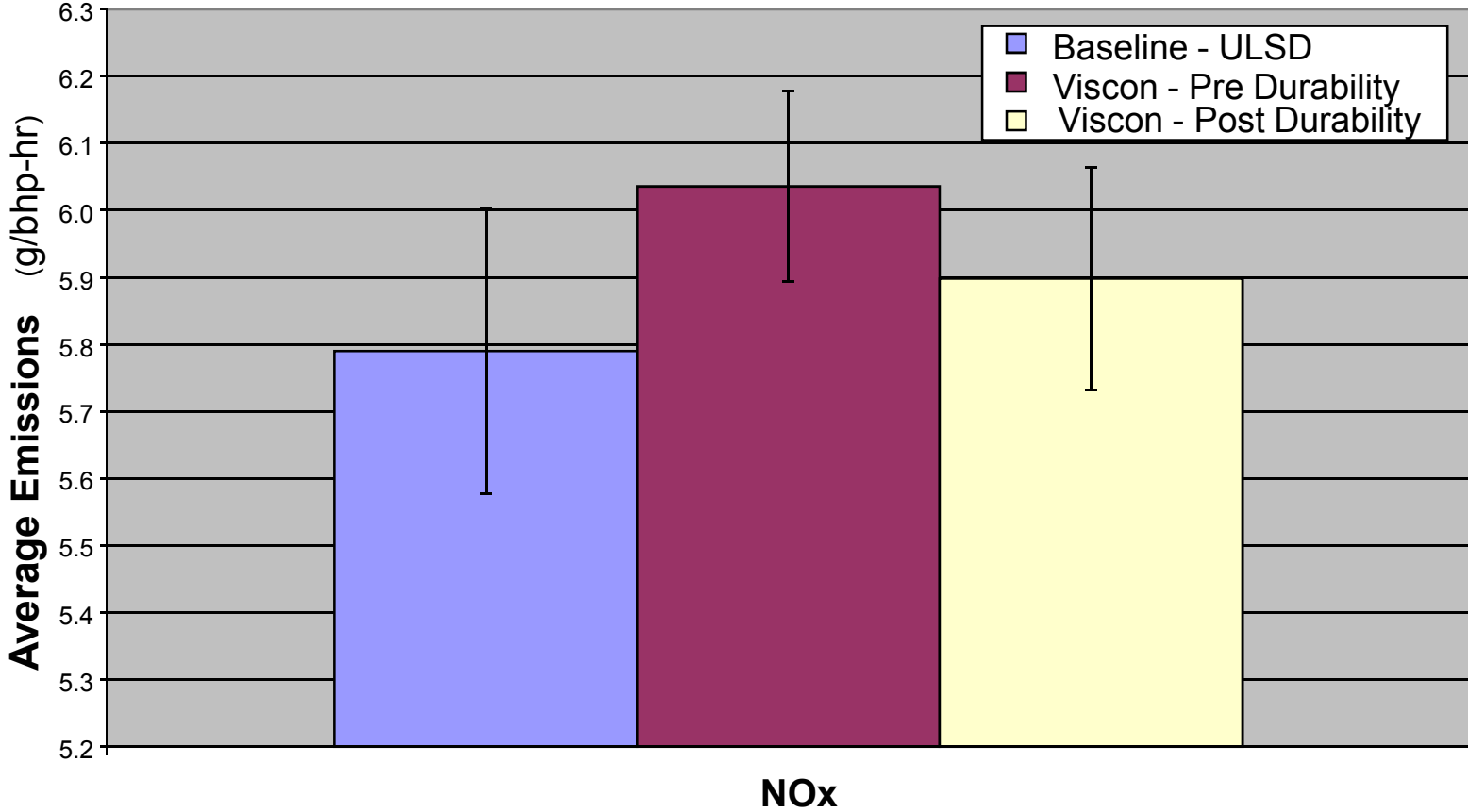
- Appropriate for the MMWG to consider reassessing the multimedia evaluation if:
  - CA sales of treated diesel approaches or exceeds 450,000 gallons/day
  - Treated diesel will be stored in USTs
  - Requested data, studies, or other relevant information indicate potential for significant risks
- Reassessment of Viscon additive use will be submitted for review by CEPC for consideration

End of Presentation

# PM Emissions



# NOx Emissions



# Verification Limits on NOx

Control strategy must not increase NOx by more than 10% of baseline emissions levels



# 1,3-Butadiene

- Average pre-durability and post-durability results
  - ~ 4.14 mg/bhp-hr increase
  - ~ 770% increase
- OEHHA conducted additional risk assessment
  - Lifetime cancer risk
  - Fixed location analysis
- Recommendation of maximum-use threshold for Viscon-treated diesel fuel in CA – 450,000 gal/day