RESEARCH PROPOSALS

January 20, 2005

California Environmental Protection Agency

Air Resources Board

Cardiovascular Effects of Fine and Ultrafine Particles during Freeway Travel

University of California, Los Angeles
Dr. William Hinds
$580,205 (26 months)

Objective: To determine if ultrafines during travel on freeways changes heart rate variability.

Expected Results: Determination of the effects of ultrafine particles on cardiac function and blood markers of cardiovascular disease.

Traffic-Related Air Pollution and Asthma in Economically Disadvantaged Communities

University of California, Los Angeles
Dr. Beate Ritz
$422,089 (36 months)

Objective: To conduct NO_x and NO_2 monitoring within the LA Family and Neighborhood Study domain for the development of a land use-based regression model.

Expected Results: Determine associations between traffic and respiratory health, provide additional information related to EJ issues, and develop a model for future traffic studies.

Monitoring and Modeling of Ultrafines and Black Carbon at LAX

University of California, Los Angeles
Dr. John Froines
$117,986 (24 months)
Funding provided by U.S. EPA, Region IX

Objective: To characterize near-source and downwind PM levels, analyze temporal patterns of emissions and investigate the contribution of aircraft emissions in residential areas.

Expected Results: The contribution of emissions from aircraft take-offs and landings to fine and ultra-fine PM levels in residential areas downwind of LAX.

Assessment of Out-of-State Heavy-Duty Truck Activity Trends in California

University of California, Davis
Dr. Christie-Joy Brodrick
$64,976 (15 months)

Objective: Determine activity estimates for heavy-duty trucks registered out-of-state but operating in California.

Expected Results: Survey and summary results that will be incorporated into ARB's on-road motor vehicle emissions model EMFAC to improve activity and emissions estimates for heavy-duty trucks.

Development of an Improved VOC Analysis Method for Architectural Coatings

California Polytechnic State University, SLO
Professor Dane Jones
$276,606 (36 months)

Objective: Develop a direct method to measure VOC content of water-based and solvent-based coatings with high concentrations of exempt compounds.

Expected Results: A new test method to measure VOC content of water-borne and solvent-based paints that is more accurate and precise.

Development of In-Field Diesel PM Compliance Method for CI Engines

University of California, Riverside
Drs. Wayne Miller and David Cocker
$299,895 (24 months)

Objective: Develop a simplified field test method that will be based on an existing ARB methods that is used to measure PM emissions from stationary sources.

Expected Results: New field test methods to measure PM emission from stationary and portable diesel engines.

Reducing Emissions of VOCs from Agricultural Soil Fumigation

University of California, Riverside
Dr. Scott Yates
$200,000 (36 months)

Objective: Generate field-based data that can be used to verify existing laboratory estimates of fumigant pesticide emissions and to estimate the emissions reductions that are achievable with existing control strategies.

Expected Results: Data that can be used to estimate the emissions rates of fumigant pesticides commonly used in California and the effectiveness of available emission reduction techniques.

Characterization of Versatile Aerosol Concentration Enrichment System

University of California, Davis
Professors Anthony Wexler, Cort Anastasio, and Suzanne Paulson
$94,739 (24 months)

Objective: Characterize artifacts from high volatility, water-soluble gas phase species and time variation in the aerosols generated by VACES.

Expected Results: Resolve several uncertainties in artifact formation and stability of concentrated aerosols from VACES.

How New Chemistry Findings Affect our Understanding of the Weekend Effect

University of California, Irvine
Dr. Donald Dabdub
$150,000 (24 months)

Objective: Quantify the impact of recent chemical findings and potential energy legislation on the dynamics of atmospheric pollutants during weekends.

Expected Results: Improve our understanding of the ozone and PM air quality dynamics associated with new chemistry on the weekend effect.

Investigation of Atmospheric Ozone Impacts of Selected Pesticides

University of California, Riverside
Dr. William Carter
$99,850 (12 months)

Objective: Develop methods for estimating and quantifying ozone impacts for major pesticides.

Expected Results: Chemical mechanisms for selected pesticides will be developed and evaluated using chamber data and will be used to estimate their reactivity.

Nighttime Chemistry: Observations of NO_3 and N_2O_5

University of California, Berkeley
Professor Ron Cohen
$122,778 (24 months)

Objective: Developing an instrument capable of making routine measurements of NO_3 and N_2O_5.

Expected Results: Analyzed ambient data that will provide an improved understanding of the nighttime chemistry of NO_3 and N_2O_5.

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