Assistance Agreement Quarterly Report Summary

Date of Report: July 31, 2000

Agreement No: R82806301

Title: **Baltimore Supersite: Highly Time and Size Resolved Concentrations of Urgan PM2.5 and its Constituents for Resolution of Sources and Immune Responses**

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Institution: Department of Chemistry and Biochemistry, University of Maryland, College Park, MD

Research Category: Particulate Matter Supersites Program

Project Period: January 15, 2000 to December 31, 2003

Objectives of Research: Our primary objectives will be to i) provide an extended, ultra high-quality multivariate data set, with unprecedented temporal resolution, designed to take maximum advantage of advanced new factor analysis and state-of-the-art multivariate statistical techniques; ii) provide important information on the potential for health effects of particles from specific sources and generic types of sources, iii) provide large quantities of well characterized urban PM for retrospective chemical, physical, biologic analyses and toxicological testing, iv) provide sorely needed data on the sources and nature of organic aerosol presently unavailable for the region, v) provide support to existing exposure and epidemiologic studies to achieve enhanced evaluation of health outcome-pollutant and -source relationships, and vi) test the specific hypothesis listed below.

Progress Summary/Accomplishments: Subcontracts have been issued to all of the Baltimore Supersite coPIs, the External Science Advisory Committee (ESAC) has been assembled and the first teleconference has been held. The ESAC members are as follows: **Professor Jonathan Samet**, Professor and Chair, Department of Epidemiology, Johns Hopkins University; **Dr. Joseph L. Mauderly, DVM**, Senior Scientist and Vice President, Lovelace Respiratory Research Institute, and Director, National Environmental Respiratory Center; **Dr. Debra Laskin**, Dept. of Pharmacology &

Toxicology, Rutgers University; **Dr. Raymond M. Hoff**, University of Maryland, Baltimore Campus, UMBC/JCET; **Professor Thomas Cahill**, Atmospheric Sciences (LAWT/Hoagland), University of California at Davis; **Dr. Lawrence Cupitt**, US EPA; **Dr. Robert Frank**, Dept Environmental Health Sciences, Johns Hopkins School of Public Health; and **Robert K. Stevens**, Florida Dept. Environmental Protection.

We have held several PI teleconferences and our first ESAC Teleconference. We have participated in the McMurry teleconferences on aerosol measurements (especially concerned with the issue of relative humidity during sampling). Professor Hopke has participating in regularly scheduled teleconferences regarding harmonization of AQ across the Supersites and has begun work on the project QAPP. We have produced a summary position paper on our plans to deal with the RH issues involving the various aerosol samplers and spectrometers.

We have begun making improvements to the University of Maryland Semicontinuous Elemental Analysis system (SEAS). Dr. Christopher Kidwell has been hired for this purpose. Dr. Yu-Chen Cheng is developing and testing trap impactor designs for us. We have hired a Chief Analytical Chemist to help test the SEAS and organize and execute chemical and elemental analyses for the Baltimore Supersite.

We have prepared detailed specifications for purchase of our two laboratory trailers.

Our Static Web site has been placed on line at:

www.chem.umd.edu/supersite

Publications/Presentations:

No publications or presentations have been made except for presentations to various colleagues, collaborators, and External Science Advisory Committee members.

Future Activities:

1. We will continue to hold weekly PI teleconferences as needed.
2. We will deliver a summary position paper on the RH issue to our ESAC.
3. We plan to submit specifications for purchase of Field Laboratory Trailers in September.
4. We expect that Dr. Patrick Pancras will begin assuming his duties as Chief Analytical Chemist on or about November 1, 2000.
5. We expect to obtain a contract for enlarging the security fence around the Lake Clifton site in September.
6. Additional instrument purchases are expected.
7. The Baltimore Supersite project will initiate its 12-month field study in June/July, 2001.

Supplemental Keywords: Single Particle Mass Spectrometry, ROS, Cytokine, Receptor Modeling