

**Assistance Agreement Quarterly Report  
for the period of October 1, 2003 to December 31, 2003**

January 2, 2004

Fresno, California, Particulate Matter (PM) Supersite Monitoring Program  
EPA Assistance Agreement No. R-82805701-01

**WORK PROGRESS AND STATUS**

Fourth quarter 2003 activities are summarized based on applicable tasks stated in the Fresno Supersite QAPP.

Task 1 – Equipment Procurement and Installation.

- At the end of November a trailer containing multiple sampling instruments was installed in the Veteran's Hall parking lot next to the Supersite. This was in place for a one-month special study, taking place in December, which was funded by the EPA and operated by Dr. Delbert Eatough of Brigham Young University and his graduate student, Brett Grover.
- As part of the special study, a second Sunset Laboratory Inc. semi-continuous OCEC analyzer was installed by Scott Scheller, site operator, and Brett Grover. The instrument began collecting data on December 9, 2003 and will continue to collect data until the study ends on December 31, 2003.
- A DRI Photoacoustic Spectrometer was installed by Dr. Pat Arnott, DRI, on December 8, 2003 and will continue to collect data for several months. The photoacoustic spectrometer continuously measures in-situ light absorption by aerosols. This is accomplished by measuring the sound pressure produced in an acoustic resonator by the light absorption.
- A second Multi-Angle Absorption Photometer (MAAP) was installed by Scott Scheller, on December 9, 2003, and began collecting data on December 10, 2003. This instrument continuously measures the atmospheric black carbon. Data from both MAAPs will be compared and analyzed for several months. The second instrument will then be removed and made available for other studies.
- A SPM-613D Dichotomous Monitor, manufactured by Kimoto Electric Co., Ltd., was installed by Scott Scheller on December 12, 2003. This replaced the single channel SPM-613 installed by Matt Gonzi, DRI, on November 30, 2003. The analyzer utilizes the Beta Gauge method to continuously measure fine and coarse particles. This instrument is tentatively scheduled to collect data for approximately one year.

Task 2 – Network Operations and Data Processing.

- Network operations and data processing have continued through this calendar quarter.
- Peter Ouchida of ARB has been working with ARB's computer support group to centralize the data acquisition system with others behind the ARB firewall. Some preliminary validation will be done by ARB and they will provide DRI with access to 5-minute data for additional validation and analysis.
- The new computer is currently being set up at DRI for deployment. This computer will replace the existing Data Acquisition PC, provide additional data access, and assist the site operator with daily instrument checks.

Task 3 – Laboratory Measurements.

- PM<sub>2.5</sub> mass and chemistry analyses of filter samples from FRM and chemical speciation samplers, collected every sixth day through 6/30/03, have been completed. Samples dated through 9/30/03 have been analyzed and validated for mass only. Chemical speciation and data validation is in progress and expected to be completed by 3/31/04.
- The speciation instrument sampling frequency was increased from one in six days to one in 3 days.

Task 4 – Quality Assurance.

- Continued to finalize standard operating procedures for the data analysis methods of the field measurements.

Task 5 – Data Validation and Data Analysis.

- Level 1a and 1b data validation is in process for continuous gas, particle mass and chemistry, light scattering, light absorption, particle size, and meteorological measurements through 12/31/03. Data validation criteria for the continuous instruments are being finalized. A large amount of the continuous data, collected through 11/30/03, has been submitted to the California Air Resources Board's CCAQS FTP site. This task should be completed during the first quarter of 2004. Level II validation on this data set will then resume. Submission of Supersite data to the NARSTO database is also underway and should also be completed during the first quarter of 2004 for data collected through December 2003.

Task 6 – Management and Reporting.

- Drs. John Watson and Judith Chow attended the Fresno Phase III kick-off meeting in Fresno on October 2, 2003 with Ken Bowers, Ken Stroud, Richard Bode, Barbara Weller, Peter Ouchida, Pat Ames, and Scott Scheller of ARB.
- Drs. John Watson and Judith Chow visited the Fresno Supersite on December 17<sup>th</sup> and 18<sup>th</sup>, 2003.

- Matt Gonzi visited the Fresno Supersite on November 29<sup>th</sup> and 30<sup>th</sup>, 2003 to perform maintenance and repairs on several instruments and install the SPM-613 monitor.

#### **EXPENDITURES**

Budget expenditures to date are on target, and no revisions to the approved budget are expected to be necessary at this time.

#### **QUALITY ASSURANCE**

Standard operating procedures continue to be updated for the data analysis procedures.

#### **RESULTS**

There are no results to report for this period.

#### **PLANNED ACTIVITIES FOR THE FORTHCOMING QUARTER:**

During the first quarter of 2004, the principal investigators plan to: 1) continue coordination of 2003/2004 Winter Carbon Intercomparison Study, 2) finalize procedures for the data handling protocols for the Fresno Asthmatic Children's Environment Study (the concurrent health study conducted by the University of California, Berkeley and California Air Resources Board), 3) finalize data validation criteria and database structure, and 4) finish and install the computer upgrade for the Data Acquisition System.

#### **PUBLICATIONS, PRESENTATIONS, AND REPORTS:**

One manuscript was accepted during this quarter:

Chen, L.-W., J.C. Chow, W.P. Arnott, H. Moosmüller, and J.G. Watson (2003). Modeling Reflectance and Transmittance of Quartz-Fiber Filter Samples Containing Elemental Carbon Particles: Implications for Thermal/Optical Analysis. *J. Aerosol Sci*, accepted.

No presentations were given during this quarter.

No reports were prepared during this quarter.

#### **QUARTERLY REPORT SUMMARY:**

See attached.