

**ASSISTANCE AGREEMENT QUARTERLY REPORT SUMMARY**

for the reporting period January 13, 2002 through April 12, 2002

May 27, 2002

**St. Louis - Midwest Particulate Matter (PM) Supersite Monitoring Program**

EPA Assistance ID No. R-82805901-0

Investigators and Institutions:

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Dr. Warren White, Co-PI	Washington University, St. Louis, MO
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Lead Institution: Washington University in St. Louis  
Research Category: Particulate Matter Supersites Program  
Project Period: January 13, 2000- January 12, 2004

Objective of Research:

This project will provide an atmospheric measurement study which is designed to address and integrate objectives of the atmospheric, health and exposure research communities.

Progress Summary/Accomplishments:

Ninth quarter activities focused on routine measurements at the East St. Louis (IL) core monitoring location. Furthermore, several enhancements were made to the monitoring strategy as follows.

- The St. Louis - Midwest Supersite was added to the Midwest Hazecam Network which is sponsored by the Midwest RPO. In collaboration with Illinois Environmental Protection Agency, a digital camera located on the East St. Louis core site meteorological tower provides hourly-updated images to the Midwest Hazecam web site (<http://www.mwhazecam.net/st.html>). Improvements are being programmed to increase the image uploading frequency and possible add air quality and/or meteorological parameters to the web site data stream.

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<sup>1</sup> Current affiliation: NECAUM, Boston, MA (Mr. Mark Davey now serves as the Director of Engineering Operations for HSPH to this project)

<sup>2</sup> Current affiliation: American Chemistry Council, Washington, D.C. (Dr. Alan Hansen is currently serving as the official EPRI liaison to the St. Louis Supersite)

<sup>3</sup> Current affiliation: NPS-CIRA, Fort Collins, CO (Dr. Rudolf Husar now serves as the CAPITA liaison to this project)

## *St. Louis - Midwest Fine Particulate Matter Supersite*

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- A second R&P 8400N nitrate unit was added to the measurement platform. This unit, physically located on the movable platform, has been operating as the core site for most of the reporting quarter to provide an extensive data set for collocated R&P 8400N units. The data is currently being validated and compared to 6-hour integrated and 24-hour integrated filter nitrate as measured by HEADS.
- IEPA operates a MetOne BAM for hourly-average PM<sub>2.5</sub> mass concentrations. This unit was upgraded from a static heater (installed in August 2001) to a smart heater. The data is currently being validated by IEPA and will be compared to Andersen CAMMS and also filter measurements data.
- Two TSI Electrical Aerosol Detectors (Figure 1) have been deployed at East St. Louis core site. Instrument performance is currently being evaluated, which will include a comparison to aerosol properties as measured by the University of Minnesota particle size distributions system.
- A series of Numetrics "Groundhog" traffic sensors have been installed on roadways adjacent to the East St. Louis core site. This network (Figure 2), installed by the Illinois Department of Transportation and operated by Washington University staff, provides time-resolved data for traffic volume, speed and vehicle class for six lanes of traffic to identify and characterize potential microscale influences of motor vehicle traffic on an aerosol measurements at the East St. Louis monitoring site.

### Publications/Presentations:

Project overview briefings were presented at: (1) American Lung Association of Eastern Missouri Annual Clean Air Update, St. Louis, MO, March 15, 2002; (2) CENRAP joint meeting of the Monitoring, Modeling and Emission Inventory Work Groups, Baton Rouge, LA, March 19, 2002; (3) Missouri Air Conservation Commission, St. Louis, MO, March 28, 2002; and (4) IEPA PM<sub>2.5</sub> Technical Workshop, Springfield, IL, April 11, 2002.

### Future Activities:

The ninth quarter will include sustained monitoring at the East St. Louis core site, and also satellite site deployments at the north St. Louis City urban residential site and the Park Hills rural site. Data sets from the St. Louis - Midwest Supersite and the St. Louis Community Air Project (CAP) air toxics monitoring network are being integrated; Mr. James Hirtz, USEPA Region VII, is on detail to Washington University for three months to spearhead this effort.

### Supplemental Keywords:

particulate matter, PM-2.5, monitoring, air quality

Relevant Web Sites: St. Louis - Midwest Supersite: <http://capita.wustl.edu/StLSuperSite>



Figure 1. TSI Electrical Aerosol Detector (EAD).



Figure 2. Approximate placement of the Numetrics "Groundhog" traffic sensors at the East St. Louis (IL) core site. Sensors denoted as red circles; Supersite monitoring footprint denoted as red rectangle.