

# AIR TOXICS MONITORING NEWSLETTER

A PUBLICATION OF THE STAPPA/ALAPCO/USEPA AIR TOXICS MONITORING STEERING COMMITTEE

January 2002

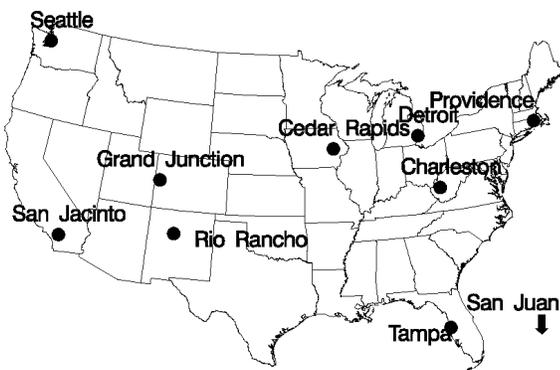
The STAPPA/ALAPCO – USEPA Air Toxics Steering Committee was established in 1999 for the purpose of overseeing the development of a national air toxics monitoring network. Members include representatives from several states and local agencies (Vermont, Massachusetts, New Jersey, Texas, Oregon, California, South Coast, Puget Sound), multi-state organizations (NESCAUM and LADCO), and USEPA (OAQPS and certain Regional Offices). The Steering Committee decided in early 2000 that the national air toxics monitoring network should be “rolled-out” over a several year period. The activities related to the national network are discussed in this quarterly newsletter.

## Review of Grants and Initial Activities

**First Year (FY00 Grants):** To support the first year of national air toxics monitoring, USEPA made \$3 million in FY2000 money available to the states. The Steering Committee, with the approval of the STAPPA/ALAPCO Board of Directors, agreed to use these funds for two major projects:

- \$2.5 million to support four urban area and six small city/rural pilot monitoring projects (see map below); and
- \$0.5 million to analyze existing (and the new pilot project) monitoring data.

This approach was accepted by a panel of USEPA’s Science Advisory Board as a prudent and appropriate initial step toward a national air toxics monitoring network (see <http://www.epa.gov/sab/ec0015.pdf>).



**Map of Ten Cities in Monitoring Pilot Project**

The pilot project is intended to generate information on the spatial and temporal variability of ambient air toxics concentrations. Monitoring in three of the cities (Tampa, San Jacinto, and Cedar Rapids) began in January 2001, but the remaining cities had various delays, bringing their start dates into the second quarter or later (i.e., Rio Rancho and the WV site were delayed until August). All sites will provide at least 12 months of data. Further data collection is planned at 1 - 3 pilot city sites in each of the four urban areas, plus 1 site in Cedar Rapids. Sampling is being conducted on primarily a 1-in-6 day frequency in the four urban areas, and a 1-in-12 day frequency in the six small city/rural areas. Each area will sample for at least 18 “core” VOCs, carbonyls, and metals. The data will be analyzed as part of the air toxics data analysis project.

The data analysis project is intended to “mine” the existing monitoring data to provide information about the spatial pattern, temporal profile, and general characteristics of air toxics compounds. The project was performed by Battelle Memorial Institute and Sonoma Technology, Inc., under contract to LADCO. To supplement Battelle’s work, ICF Consulting analyzed air toxics modeling data to assess the spatial, seasonal, daily, and diurnal variability of air toxics concentrations from USEPA’s recent ASPEN modeling performed as part of their National Air Toxics Assessment and a special ISCST modeling analysis by USEPA.

Draft reports were received from Battelle/STI and ICF in September 2001. Please note that in view of the limitations of the existing data, these analyses cannot provide any definitive recommendations about network design. More specific recommendations must await the completion of the analyses of the forthcoming pilot city data. The preliminary recommendations from the draft reports are as follows:

- A nationally-consistent monitoring network is needed with common sampling and analysis procedures, a common set of compounds, and common data reporting. Network design must reflect the following monitoring objectives: characterize ambient concentrations; support modeling; and assess trends. Additional monitoring stations will be needed to address local concerns.

- In the absence of local major point sources, very few monitoring stations (possibly only one) may be needed to characterize annual average concentrations across an urban area.
- Monitor siting should consider all available local information, especially any reliable modeling data, current emissions inventories, and representative wind data. ASPEN modeling, in particular, can be used to help establish neighborhood- or urban/regional-scale monitors..
- To provide a reliable annual average concentration, sampling should be performed year-round for a 24-hour period (midnight-to-midnight) at least every sixth day (or every third day for higher concentration or source-oriented sites). Further analysis is needed to determine the appropriate sampling frequency to address other averaging times of interest (e.g., seasonal/quarterly and daily).
- A basic suite of air toxics compounds (e.g., the 18 compounds of interest in the pilot city monitoring) can be measured adequately with current monitoring methods. To measure other compounds of interest, it will be necessary to develop more cost-effective, practical methods.

The analysis of existing air toxics data represents an important first step in developing network recommendations. Additional steps include completion of the full year of pilot city monitoring in all 10 areas (which should be done by spring 2002), a thorough analysis of these data (which can be done by late 2002), and consideration of any additional material, such as updated emissions inventories and modeling, and information on current monitoring methods.

**Second Year (FY01 Grants):** USEPA provided \$3 million in FY2001 money for air toxics monitoring. The Steering Committee decided that these funds should be used to support projects from the following menu of options: (1) data analysis of local/regional monitoring, (2) new monitoring sites for areas with no air quality data, (3) monitoring for additional pollutants, and (4) continuation of pilot city monitoring sites for trends purposes. The monitoring projects, which are identified below, are scheduled to begin in 2002, but some work has already begun with the Alabama and Mississippi projects. The monitoring will follow the general protocols developed as part of the pilot city project, and will incorporate, to the extent

possible, any information which becomes available from the monitoring pilot and data analysis projects.

Region I – (a) RI – continuation of one of the Providence pilot sites for trends purposes; (b) NH – addition of carbonyl measurements to existing VOC sites and Hg deposition monitoring; (c) MA – data analysis

Region II – NJ - mobile platform for sampling

Region III – A regional network is planned to better characterize multi-state conditions, and includes 5 states and 3 local agencies.

Region IV – (a) AL – additional resources for planned monitoring project in Mobile; (b) NC – mobile platform for sampling in Charlotte; (c) MS – new monitoring site along Gulf Coast; (d) TN - trace metals analysis of TSP by Inductive Coupled Plasma (ICP) spectroscopy in Knox County.

Region V – Similar to Region III, a regional network is planned to better characterize multi-state conditions, and includes 5 states and 1 local agency.

Region VI – (a) AR – new monitoring sites in Little Rock and West Memphis; (b) NM – new monitoring sites in Albuquerque and Santa Fe

Region VII – (a) MO – additional sampling at existing sites in St. Louis; (b) IA – continuation of the Cedar Rapids pilot site for trends purposes; (c) NE – new monitoring site in Lincoln

Region VIII – (a) CO – two new monitoring sites in Denver, Front Range; (b) UT – adding metals and carbonyl sampling to an existing site

Region IX – (a) AZ – data analysis and some new toxics sampling; (b) CA – two new monitoring sites in San Diego, data analysis in South Coast, and audits for San Jacinto; (c) HI – new monitoring site

Region X – (a) SA – continuation of two of the Seattle pilot city sites for trends purposes; (b) OR – new monitoring site in Portland.

**Third Year (FY02 Grants):** USEPA provided \$3 million in FY2002 money for air toxics monitoring. The Steering Committee is currently developing recommendations on how to allocate these funds to support additional data analyses, completion of the first (and second) year monitoring projects, continuation of existing (or initiation of new) state and local air toxics monitoring, and the establishment of an initial national network.

The initial national network will reflect a limited number of trends sites (approximately 20 sites). More trends sites may be added in future years of the program. Given the large number of state and local air toxics monitoring sites, as well as the many new sites established pursuant to the first and second year monitoring activities, it is felt that most, if not all of, these 20 sites can rely on existing sites, although modifications may be needed to meet the national monitoring protocols. The basic elements of the initial trends network are as follows:

**Objectives:** Estimate annual average values and associated trends, with spatial resolution to regional-scale and temporal resolution to quarterly-scale.

**Pollutants:** The network should ensure that those compounds which pose the greatest risk are measured. To this end, the 1996 NATA data show that only a few compounds contribute nationally to widespread cancer and/or non-cancer risk that are of health concern. The most prominent are benzene, formaldehyde, acrolein, and chromium. A few comments on this list of compounds should be noted.

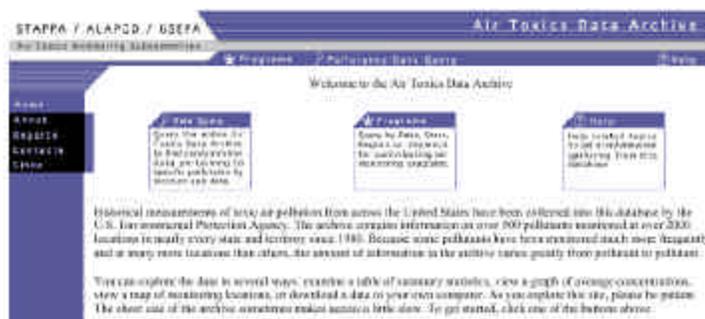
First, it is recognized that the current monitoring methods for these compounds will also yield data for a number of other compounds. Second, co-location with other measurements is highly desirable (e.g., PM<sub>2.5</sub>-speciation). Third, methods for acrolein and chromium capture is an issue currently under investigation by USEPA. Newer methods should be available in the next two years. Fourth, diesel particulate matter is another compound of concern and will be dealt with as part of the on-going particulate matter monitoring program. Carbon indicator measurements, which are being used by several agencies, show promise and will be considered for inclusion at the trends sites.

**Siting:** The trends sites should be distributed across the country and should be focused on representative urban areas, but also include representative rural and regional background locations. This initial network will generally reflect the impact of mobile sources in different geographic and climatic regions.

**Protocols:** Monitoring shall conform to protocols as specified in "USEPA FY2000 State and Local Agency Grant Guidance and Allocation, National Air Toxics Monitoring Pilot Program", July 2000 and "Toxics Pilot Monitoring Study Measurement Guidelines (draft)".

## Air Toxics Web Site and Archive

As part of the data analysis project, Battelle developed a web site for the air toxics data archive <http://www.sdas.battelle.org/airtoxics/index.php> (user id = airtoxics, password = ladco). User feedback on this web site is requested, but please be patient in exploring the site, because the sheer size of the archive sometimes makes access a little slow. Future work includes improvements in response to user comments, additions to the archive, and improved speed and scalability.



Cover Page of Air Toxics Web Site

Because the web site is password protected, the historical data in the air toxics data archive are not publicly available. At this time, USEPA intends to close the archive once all the 2000 data are included and is encouraging states to submit all new air toxics data to AIRS. States may wish to submit (or authorize USEPA to transfer) historical data in the archive to AIRS in order for these data to be publicly available. For further information about this archive to AIRS transition, please contact Tesh Rao, USEPA, OAQPS ([rao.venkatesh@epamail.epa.gov](mailto:rao.venkatesh@epamail.epa.gov)).

## October Air Toxics Workshop

On October 29 – 30, 2001, a workshop was held in Rosemont, IL (near Chicago's O'Hare Airport) to review the results (to date) from the 2001 monitoring pilot projects and the data analysis work. A special edition of the Air Toxics Monitoring Newsletter was prepared summarizing the workshop (<http://www.ladco.org/toxics/newsletter/atmn5-special.pdf>). Based on the positive response, there may be another workshop in fall 2002 to discuss the results of the first year of pilot city monitoring and any preliminary analyses of these data.

For information on the monitoring pilot project, please contact Sharon Nizich, USEPA, OAQPS, [nizich.sharon@epamail.epa.gov](mailto:nizich.sharon@epamail.epa.gov), 919-541-2825. For further information on the data analysis project, please contact Michael Koerber, LADCO, [koerber@ladco.org](mailto:koerber@ladco.org), 847-296-2181. This newsletter will be issued on a regular (quarterly) basis to provide status reports on air toxics monitoring activities.