OFFICE OF AIR QUALITY PLANNING AND STANDARDS
AIR MONITORING STRATEGY FOR CRITERIA POLLUTANTS
l987 UPDATE

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AIR MONITORING STRATEGY FOR CRITERIA POLLUTANTS - 1987 UPDATE
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INTRODUCTION

The EPA Policy on ambient air monitoring requires the Agency to develop ambient air monitoring plans and programs that meet the full range of present and projected data needs to support regulatory programs. This 1987 Strategy represents an update to: the OAQPS 1977 "Air Monitoring Strategy for State Implementation Plans" which served as the basis for developing Federal, State, and agency local long-range air monitoring programs; and the 1984 "Air Monitoring Strategy for Criteria Pollutants" which revised and updated the 1977 strategy. The 1984 strategy for ambient air monitoring for criteria pollutants addressed six activities: monitoring program objectives and data needs; air quality monitoring and data reporting regulations; monitoring compliance status - meeting data needs; methods development and evaluation; data storage, retrieval, and analysis; and program management review, evaluation, and revision. This l987 update "plan" provides the status of some individual sub-programs which have changed since last year's l986 update and includes associated resources for future operations.

Status of Changes in Monitoring Activities

1. Generic Revisions of Ambient Criteria Air Monitoring Program (40 CFR 58)

As indicated in the 1986 strategy update, the generic revisions of 40 CFR 58 were promulgated March 19, 1986. At this time, State and local

agencies are conducting NAMS and SLAMS network reviews to bring their networks into line with the revisions of the regulations. Similarly, revisions for State and local quality assurance programs to meet the new requirements are in progress.

2. Non-methane Organic Compounds (NMOC)

During the summer of 1986, 23 sites in 18 cities participated in the NMOC measurement program organized by OAQPS, similar to those measurement programs carried out in 1984 and 1985. During 1987, 27 sites in 20 cities will participate in a similar program beginning June 1.

The "preconcentration direct flame-ionization detection" (PDFID) method for ambient NMOC has been developed to the point where it can now be carried out by some State/local agencies. All of EPA Region III 's NMOC samples will be collected and analyzed by the Maryland State agency during the summer of 1987. Wisconsin, in Region V, plans to carry out a study of NMOC transport this summer using the PDFID method. Other agencies have made inquiries about adopting the procedures, too. Samples collected by those agencies who are interested or cannot analyze them will be analyzed by EMSL.

3. Status of Visibility Monitoring Program Activities

a. Interagency Program (IMPROVE)

In July 1985, representatives of the Federal Land Managers (FLM's) and EPA met and drafted goals and an administrative approach for an expanded formal interagency visibility monitoring program based on the "Visibility Monitoring Plan for Class I Areas" prepared in 1985 by Environmental Monitoring Systems Laboratory (EMSL-Las Vegas) for the

Office of Air Quality Planning and Standards (OAQPS). The title of this program is "Interagency Monitoring of Protected Visual Environments" (IMPROVE), and it is administered by a technical steering group composed of one representative from each of the following agencies: Bureau of Land Management (BLM), U.S. Forest Service (FS), U.S. Fish and Wildlife Service (FWS), National Park Service (NPS), and EPA.

The first 20 sites for the IMPROVE Visibility Monitoring Network have been selected. All 20 sites had cameras installed by January 1987 and four of the sites will have transmissometers installed by Spring of 1987. Complete fine and PM10 particulate sampling modules are scheduled to be installed at the 20 IMPROVE sites beginning in March 1987. Approximately 500K of EPA FY 87 and 88 ~lO5 grant money will be transferred to the NPS to manage and operate this network. The NPS will add approximately $l million in FY 87 and 88 for this project.

b. Another effort which is being jointly undertaken by EPA and the NPS are the development of performance criteria for monitoring visibility. The contractor expects to complete the work on performance standards in FY-87 and on quality assurance and data processing specifications in FY-88. EPA ORD funding for this effort amounts to $203K for FY 87 and $240K i n FY 88. A similar amount will be provided by the NPS.

c. As noted in last year's update the NPS designed a pilot study for IMPROVE to develop the methodology and demonstrate the effectiveness of the documentation and attribution phases of a study to investigate suspected existing impairment in the Grand Canyon, Bryce

Canyon area. This study was expected to cost between $800K and $1300K depending on the sampling frequency (every third day vs. every day) and the duration (1-2 months during the summer and winter seasons). Funds for the program, however, were not committed by EPA or NPS.

Based upon further review and analyses, EPA now believes that studies at Moosehorn and Voyagers protected areas would be of greater value than those at Canyonlands and the Grand Canyon.

Further, the SCENES program comprised of the Electric Power Research Institute, Department of Defense, Salt River Project, Southern California Edison, National Park Service and EPA, is planning a winter haze intensive tracer experiment (WHITE) in which the IMPROVE committee agreed to participate by allowing the short term use of some of the IMPROVE monitoring equipment prior to its deployment in the long term network. For this reason, the IMPROVE committee also deferred their proposed study in the Grand Canyon/Canyonlands area to wait for the results of the WHITE study scheduled for January, February 1987.

d. The Eastern visibility and fine particle network is planned to consist of l0 Tier 1 sites with cameras, nephelometers, and aerosol samplers to be located at acid rain dry deposition sites and 20 camera only sites. FY-87 activities call for setting Up long-term operation contracts, implementing the first phase (1/2 of network), and purchasing equipment for the rest of the network. Five Tier 1 sites have been selected, but due to a lack of operational dry deposition sites and the long-term contract expected to be in place in September, only 1 of the instrumental Tier 1 sites will be operational in FY 87. Preliminary

results from the winter quarter data at White Face Mountain, New York indicate distinct haze layers obscured visibility for 11 percent of the observations while targets were obscured by weather 27 percent of the time. Carbon results indicate total carbon accounted for 20-25 percent of Fine Particulate Mass. Approximately $325K of EPA ORD funds will be expended in FY 87 and $288K is planned for FY 88.

4. PM10 Monitoring

Revisions to the particulate matter standard, the monitoring and reporting regulations and the regulations for implementing revised particulate matter standards were proposed in 1984 and will be promulgated in June 1987. These actions resulted in a need for samplers to provide PM10 rather than TSP data to make attainment/nonattainment PM10 decisions for SIP development. As of March 31, 1987, a total of 896 PM10 samplers (568 sites) were in operation; this is 75 percent of the estimated 1200 PM10 samplers (66 percent of the estimated 850 sites) necessary for the SLAMS/NAMS network and an increase of 125 samplers since the 1986 strategy update. This network of 1200 PM10 samplers was revised from 1985's estimate of 1930 based on the 1983-85 TSP and PM10 data base as opposed to the 1980-82 TSP base. By the end of FY-87, a total of approximately 925 PM10 samplers or 77 percent of the total samplers and 580 sites or 68 percent of the total sites are expected to he on line.

Additional purchases of approximately 300 samplers by State and local agencies would be needed to achieve 100 percent of the estimated total needed. Grant funding of $400K per year for FY 88 and FY 89 will provide another 200 PM10 samplers. The remaining lOO need to be procured through

State and local agency funding.

5. Aerometric Information Retrieval System (AIRS)

The development of AIRS continues with the scheduled production date for the Air Quality Subsystem (AQS) in July 1987 and the final scheduled updates of data in Storage and Retrieval of Aerometric Data (SAROAD) in June 1987. The initial AQS data base will contain data currently stored in SAROAD and will include any reported air toxic data as well as trace element data from the NPN. Although AIRS is designed to permit direct State input, Regional Offices will initially input data as with SAROAD. Our implementation
schedule is for six States to become direct AIRS users in FY-87, nine in FY88, and fifteen in FY-89.

After AIRS is operational, studies will be performed to define additional requirements for reporting and data analysis that are specific to toxic data. These additional requirements will be developed as funding-is available or could require a request for additional funds and will become the basis for additional budget initiatives.

6. Instrument Replacement

As a means of assisting the replacement of obsolete and/or worn-out ambient 03 and CO air monitors, the Agency allocated $2 million in FY-86 Section 105 grant funds for this purpose. A total of 248 monitors, 124 for each pollutant, had been targeted for procurement in FY-86.

These targets were later revised to 117 CO and 121 03 analyzers. As of March 1987, 101 CO and 115 03 analyzers had been purchased with additional instruments scheduled to be purchased through July 1987. It

is anticipated that when complete, 117 CO and 117 03 analyzers will have been purchased. For FY-87, grant funds of $500K are planned. In order to maintain a high quality monitoring program, approximately $1.5 million annually is considered necessary to replace obsolete or worn-out equipment. At this time STAPPA/ALAPCO is conducting a new instrument survey to determine analyzer replacement and laboratory equipment needs.

CRITERIA POLLUTANTS RESOURCE SUMMARY ($000)

	FY-87	FY-88
OAQPS Oversight of NAMS/SLAMS, Review PM10 Networks and Sites, Development of Regulations/Guidelines	390	420
OAQPS Data Analysis, Statistical Interpretation of NAAQS, Development of Probability Concepts, Statistical Indicators, and Techniques	435	450
Regional Office Management of NAMS/SLAMS, Quality Assurance Data Validation and Analysis, Grants Management, Special Studies	2900	3000
Office of Research and Development-NAMS/ SLAMS, Develop and Update Quality Assurance Guidance, Reference and Equivalent Methods, Development of Regulation	1265	1257
Complete Development and Begin Operation of New Aerometric Information Reporting System (Air Quality Subsystem)	370a	479a
Regional Office Operation and Maintenance of Air Data System (SAROAD) in 1987, AIRS in 1988)	475	480
Procure PM10 Monitoring Equipment	400b	400b
ORD and NPS Federal Visibility Program in Class I Areas - National Oversight Development of Visibility Reference Method, Develop and Update Quality Assurance Guidance	203c	240
ORD - Eastern U.S. Fine Particle and Visibility Program - Method Evaluation, Operation of Network, Quality Assurance	325	288
State Visibility Monitoring Program Equipment, SIP Development	500b	500b

a Only includes contract funds for software development, data conversion, and installation in 6 States in 1987, 9 more in 1988.

b To be funded through Section 105 grants

c Evenly divided between EPA and NPS