



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

November 13, 1997

MEMORANDUM

SUBJECT: PM<sub>2.5</sub> Monitoring

FROM: John S. Seitz, Director (*original signed by John Seitz*)  
Office of Air Quality Planning and Standards

TO: Director, Office of Environmental Measurement and Evaluation, Region I  
Director, Division of Environmental Planning and Protection, Region II  
Director, Environmental Assessment and Protection Division, Region III  
Director, Air Pesticides, and Toxics Management Division, Region IV  
Director, Air and Radiation Division, Region V  
Director, Multimedia Planning and Permitting Division, Region VI  
Director, Environmental Services Division, Region VII  
Director, Air Program, Region VIII  
Director, Air Division, Region IX  
Director, Office of Air Quality, Region X

The purpose of this memorandum is to request your input on (1) the State's ability to deploy and operate the PM<sub>2.5</sub> network, (2) the number of proposed monitoring sites by State, (3) early estimates for the types of monitors to be purchased by the National Contract, and (4) your views on the merging PM<sub>2.5</sub> and visibility monitoring networks. Your responses to these requests are needed no later than January 15, 1998. Please coordinate your responses with appropriate State and local programs.

Regarding the first request, some States have mentioned that the full time equivalents (FTEs) will not be available to operate and maintain the network, due to hiring restrictions and agency restructuring, despite the availability of funds via the 103 grant mechanism. I would appreciate your comments on this issue on or before January 15, 1998. If this is a widespread problem, we must take whatever steps are available to us to remedy the situation as quickly as possible.

Attachments 1-3 provide information on estimated site types and distribution by State and additional details to assist you with your responses. Please contact Richard Scheffe (919-541-4650) in regard to any questions on the PM<sub>2.5</sub> monitoring program. I want to stress again that the implementation of this network is one of the Agency's very highest priorities. Therefore, your cooperation in meeting these requests is greatly appreciated, and will facilitate the implementation of this important network.

Attachments

cc: Deputy Director, Office of Ecosystem Protection, Region I  
Director, Division of Environmental Science and Assessment, Region II  
Director, Air Radiation and Toxics Division, Region III  
Director, Science & Ecosystems Support Division, Region IV  
Director, Air RCRA, and Toxics Division, Region VII  
Director, Office of Environmental Assessment, Region X  
Regional PM<sub>2.5</sub> Monitoring Contacts  
Michael Bower, CMD  
Larry Cupitt, ORD  
Bill Harnett, OAQPS  
Bill Hunt, OAQPS  
Mary Kemp, Region VI  
Jerry Kurtzweg, OPMO  
Rich Scheffe, OAQPS  
Sally Shaver, OAQPS  
Ieva Spons, OAQPS

## **Attachment 1 - PM<sub>2.5</sub> Monitoring Network Deployment Background**

In John Seitz' October 2 memorandum, the Regions were requested to survey their States regarding the use of OAQPS's National Contract to purchase their PM<sub>2.5</sub> samplers. In summary, it appears that most States are interested in using the National Contract for purchasing PM<sub>2.5</sub> monitoring equipment. Several Regions passed along comments from their States that indicated some concerns regarding use of the national contract that are addressed as follows. A few States are uncertain as to what is included on the National Contract and what is the monitoring deployment strategy. Some States plan to use the National Contract if they can select the particular vendor, some States would like a variety of vendors to supply their equipment, and others want assurances that all of their equipment will come from the same vendor.

The goal of the monitoring network is to have 1100 PM<sub>2.5</sub> sites operational by January 1, 1999, and a total of 1500 PM<sub>2.5</sub> sites operational by January 1, 2000. The total of 1100 PM<sub>2.5</sub> sites projected for January 1, 1999, includes existing EPA-funded Interagency Monitoring of Protected Visual Environments (IMPROVE) sites, other existing sites employing PM<sub>2.5</sub> sampling technologies such as continuous monitors and dichotomous samplers, and sites to be established in this program. Attachment 2 provides an estimate of site distribution types by State and Attachment 3 provides additional detail on site types.

The purpose of the National Contract is to establish a vehicle by which State and local agencies can easily purchase all of the Federal Reference Methods and Federal Equivalent Methods (FRM/FEM) PM<sub>2.5</sub> samplers they need for their networks; monitors for chemical speciation; and, portable FRM samplers to be used for quality assurance audits. In addition, the contract will include an assortment of spare parts to facilitate operation and maintenance of these samplers. The National Contract will not include provisions for purchasing continuous monitors or meteorological equipment. Each State will be responsible for procuring continuous samplers to meet the public reporting requirements of one site in each of the 52 largest metropolitan areas using FY98 and FY99 section 103 grant funds awarded directly to State and local agencies. Draft guidance for continuous monitoring measurements will be available in January 1998.

The National Contract is a procurement consisting of several vendors (yet to be determined), each providing samplers that all meet identical specifications. As part of each contract award, the contractors will be guaranteed a reasonable minimum (OAQPS will agree to pay for a reasonable minimum). All units ordered under the contracts will be provided at a fixed price per unit. In addition to meeting the specified contract minimums, several other factors must be examined when placing orders with various vendors. Among the factors to be considered are monitor type required as well as the firms' individual manufacturing capacities and price. Because of these factors, it may be difficult to promise a particular vendor's equipment will be provided exclusively to a particular State. Some States have a well-founded desire to generally deal with only one vendor of their choosing. Such an arrangement encourages a good business relationship, and, at the same time, avoids the need for maintaining multiple inventories from multiple vendors. Also, some States have other preferences in obtaining their PM<sub>2.5</sub> equipment. Accordingly, everything will be done to allow everyone maximum flexibility of choice within the confines of these contracts.

The mature 1500 site network will include a mix of sites that will be used for comparison to the National Ambient Air Quality Standards (NAAQS); characterizing transport, background levels and visibility; and special purpose monitoring sites used for various characterization purposes. The monitoring regulations require a minimum of 848 sites, including 103 for background and transport. Fifty of the 848 sites would be required to conduct additional speciation sampling and analysis in addition to standard mass sampling, and a site in each of the 52 largest cities is required to employ continuous samplers, again in addition to standard mass sampling with a Federal Reference or Equivalent Method. Consistent with all regulatory networks, a substantially greater number of sites than those required by regulation, are deployed. The difference between 848 required sites and the 1500 site network is to ensure coverage to address spatial averaging needs; cities with fewer than 200,000 capita; characterization of rural environments (for regional haze assessments, transport, and background measurements), and other special purpose monitoring data needs. Within the 1500 site total, it is estimated and planned for deployment of 306 sites for chemical speciation. Initial allocation of these sites includes 21 PAMS cities, 2 each in cities with populations greater than 500,000 and 1 each in cities with populations between 200,000 and 500,000. The objectives of the speciated data are to support implementation plans by providing observational data for air quality model evaluation, emission inventory corroboration, source apportionment, regional haze assessments, and tracking progress of implemented control programs.

The multiple objectives of this network dictate the need for various types of sampling instruments. These instrument types include FRM/FEM which must be used for NAAQS comparisons and can be used for other data analysis purposes, the IMPROVE samplers that are used for visibility assessments and can be used for State/local Air Monitoring Stations (SLAMS) background and transport sites, continuous samplers, speciation samplers, and other existing instruments such as the dichotomous sampler. Only the FRM/FEM samplers can be used for comparison to the NAAQS. It is estimated that 900-1200 sites will be equipped with FRM/FEM samplers within the full 1500 site network. The remaining sites include those with IMPROVE monitors for regional haze and regional transport assessments (108), 141 other existing sites using non-FRM/FEMs, and other special purpose monitoring sites. It is understood that some States may choose to add FRM/FEM samplers to these existing sites, while others will choose to continue deploying non-FRM samplers only.

In addition to the \$10.9 million included in the budget request for PM<sub>2.5</sub> monitoring, Congress authorized an additional \$24.743 million for particulate matter monitoring and data collection. The Congress stipulated that these funds be issued pursuant to section 103 of the Clean Air Act so as not to require a State or local agency to share costs as is normally required when using the section 105 funding mechanism. This new FY 1998 total of \$35.643 million will be allocated to State and local Grantees in the near future. A revised FY 1998 grant allocation memorandum will be issued by OAR by December 1, 1997. This forthcoming allocation will describe our assumptions regarding costs across different program components (e.g., samplers, operations and maintenance, laboratory analyses, etc.). It also will identify those funds that will be directed to the National procurements/programs such as National Monitoring Contract, filters, speciation laboratory support, the quality assurance (QA) audit program and visibility

monitoring. While that information will be needed when beginning section 103 grant work plan negotiations with the States, it is felt that the Regions can proceed on the basic design elements and provide EPA with estimates of the number and types of samplers by January 15, 1998. There is an additional \$2 million beyond the \$35.64 million set aside specifically for tribal monitoring. Those funds and associated allocations will also be addressed in OAR's forthcoming memorandum.

For the past several years State grant funds have been used to support visibility monitoring via the IMPROVE program. The IMPROVE Network is operated by a Steering Committee that includes the federal land managers who are responsible for preserving and improving air quality over the lands in their charge. Their involvement in such monitoring programs represents a major advantage to EPA and the States for a number of reasons. They have access to secure monitoring locations and have provided staff to operate the equipment. For many sites, they have contributed the resources to purchase and operate complimentary monitoring equipment. They provide contract management for all phases of the field program (equipment procurement, deployment and maintenance; sample analyses; QA; and data management). The IMPROVE Steering Committee also includes representatives from three state-based organizations (STAPPA, WESTAR, and NESCAUM) in recognition of the States' interest in this program. The forthcoming Regional Haze rule will include visibility monitoring requirements. With the technical connections between visibility and fine aerosols logically pointing to a comprehensive monitoring program that services  $PM_{2.5}$  and visibility assessments, a technical plan has recently been developed to integrate the  $PM_{2.5}$  network with the existing IMPROVE network. This plan includes establishment of 78 additional IMPROVE sites (to be funded from the \$35.64 million cited above) in or near Federal Class I areas over the next two years. Combined with the existing 30 IMPROVE sites funded through 105 Grants, these 108 sites, whose principal objective is visibility, will be considered part of the 1500 site  $PM_{2.5}$  network. The estimated costs are \$2.12 million for 1998, and \$4.04 million for 1999. Currently, discussions are underway with EPA, State/local agencies and the IMPROVE Steering Committee to facilitate integration of IMPROVE and the National  $PM_{2.5}$  Monitoring Program.

Attachments 2 & 3 should facilitate collective planning to develop estimates of samplers for the upcoming National Contract. Cooperation with this request for sampler estimates is critical to developing vendor orders, and enable timely delivery to State and local agencies and does not replace the important network design activities underway with EPA and the State and local agencies. Final network design guidance will be distributed in December 1997 and, until the States submit final network design descriptions in July 1998, it will be impossible to provide a more exact number of FRM/FEM sites. The attachments should be used in discussions with State and local agencies in verifying the number of sites and monitors by sampler type to be implemented during the next two years. The timing of this request does precede the July 1998 submittal for State network plans. However, it is our understanding that most Regional Offices are actively working with their States and progressing with network descriptions. Preliminary network design descriptions are expected to be completed by January 15, 1998 to begin developing the ordering and sampler deployment strategy for configuring the networks.

**Attachment 2. PM-2.5 Monitoring Site Distributions - DRAFT**

11/7/97

STATE	CORE Required Sites -2 per Area > 500k -Add'l Sites in MSA >1M 1 per Area 200k-500k -1 per PAMS area	Non-CORE Required SLAMS -Non-CORE Required Pop. -Background + Transport	Supplemental Sites -Sites in Hi Pop/Hi Emission Areas -State discretionary sites -Regional Haze/Transport/ Background sites	Year 2000 TOTALS By State	FY97 Sites* Operating & Funded in 98 Total By State	Add'l Sites Added FY98 By State	Add'l Sites Added FY99 By State
CT	10	3	3	16	1	15	0
ME	1	7	19	27	0	14	13
MA	12	6	5	23	0	19	4
NH	2	6	5	13	0	9	4
RI	4	2	3	9	0	7	2
VT	0	4	5	9	0	5	4
Reg I	29	28	40	97	1	69	27
NJ	16	2	5	23	0	18	5
NY	29	11	15	55	4	31	20
PR	6	4	4	14	0	9	5
VI	0	1	1	2	0	1	1
Reg II	51	18	25	94	4	59	31
DE	2	3	5	10	0	7	3
DC	2	0	2	4	0	3	1
MD	8	5	7	20	1	15	4
PA	21	13	18	52	1	36	15
VA	8	11	9	28	0	21	7
WV	2	9	8	19	0	15	4
Reg III	43	41	49	133	2	97	34
AL	5	12	14	31	0	21	10
FL	25	11	10	46	0	34	12
GA	9	14	16	39	0	26	13
KY	3	14	10	27	0	21	6
MS	2	11	12	25	0	16	9
NC	10	17	17	44	3	30	11
SC	5	10	10	25	0	19	6
TN	9	10	10	29	0	22	7
Reg IV	68	99	99	266	3	189	74
IL	12	18	14	44	9	26	9
IN	8	15	14	37	3	25	9
MI	13	11	10	34	0	24	10
MN	5	10	11	26	0	17	9
OH	20	15	16	51	0	38	13
WI	6	15	17	38	5	23	10
Reg V	64	84	82	230	17	153	60
AR	3	10	12	25	2	17	6
LA	8	10	19	37	4	23	10
NM	2	6	17	25	2	14	9
OK	4	9	8	21	2	18	1
TX	28	24	30	82	4	50	28
Reg VI	45	59	86	190	14	122	54
IA	2	13	10	25	2	18	5
KS	2	11	8	21	1	15	5
MO	6	11	13	30	3	19	8
NE	3	6	3	12	0	10	2
Reg VII	13	41	34	88	6	62	20
CO	5	7	17	29	2	20	7
MT	0	5	28	33	0	11	22
ND	0	5	8	13	2	6	5
SD	0	5	7	12	0	10	2
UT	4	3	8	15	2	12	1
WY	0	4	10	14	3	7	4
Reg VIII	9	29	78	116	9	66	41
AZ	6	5	20	31	9	17	5
CA	56	10	39	105	30	54	21
HI	2	3	6	11	2	6	3
NV	3	2	5	10	0	10	0
Reg IX	67	20	70	157	41	87	29
AK	1	3	15	19	2	7	10
ID	1	5	18	24	5	9	10
OR	5	7	29	41	19	17	5
WA	7	11	27	45	18	22	5
Reg X	14	26	89	129	44	55	30
<b>Totals</b>	<b>403</b>	<b>445</b>	<b>652</b>	<b>1500</b>	<b>141</b>	<b>959</b>	<b>400</b>
Min. FRM/FEM Sites:	403	342	0	745	*We may need to fund the sampler replacement cost of a number of the 141 existing sites in FY99. Funding estimates for this are part of the FY99 estimates.		
Est. FRM/FEM Sites:	403	392	360	1155			
Est. Speciation Sites:	306	0	0	306			

