UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

October 23, 1998

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Grant Guidance for Fine Particulate ($PM_{2.5}$) Ambient Air Monitoring Programs

FROM: Robert Perciasepe
Assistant Administrator *(original signed by Bob Perciasepe)*

TO: Regional Administrator, Regions I - X

The attached documents contain the Agency's grant allocation and guidance for the $PM_{2.5}$ Ambient Air Monitoring Program. It is important to distribute this information to your State and local agencies as quickly as possible, and for our offices to begin planning activities and negotiating the distribution of funds for FY 1999. These materials were prepared based upon an expected FY 1999 budget of $50.735 million funded under the Clean Air Act's §103 grant authority.

The $PM_{2.5}$ monitoring network consists of several different elements including federal reference method measurements, continuous measurements, chemical speciation sampling and analysis, and visibility measurements of aerosols. The National Academy of Sciences (NAS) Report, *Research Priorities for Airborne Particulate Matter: I. Immediate Priorities and a Long-Range Research Portfolio,* recommended that the Agency optimize the entire monitoring program to address scientific needs in addition to stated regulatory objectives. In our response to the NAS, we are increasing speciation and continuous monitoring and promoting greater coordination of State and local agencies' monitoring activities with the research community. This grant guidance contains the Agency's proposed mix of network elements and their revised costs. While we need to move forward expeditiously on monitoring needed to support designations, our proposal for speciation monitors is being sent to the NAS and to the Clean Air Science Advisory Committee for their consideration. In addition, we are responding to recommendations of a peer review panel on speciation monitoring. For this reason, we are asking that you review decisions for these samplers to accommodate any additional recommendations and conclusions from these reviews and activities.

The Agency also has responded to concerns expressed by State and local agencies about the amount of flexibility they have in designing their $PM_{2.5}$ networks. The Agency does intend for State and local agencies to negotiate with the Regional Offices in designing their actual networks, which may differ from what is proposed in this grant guidance. Each State or local agency must meet the minimum regulatory requirements for each program element; however, the

Agency has built enough flexibility within the program to allow for customizing the network to meet individual State and local agency needs in addition to meeting national goals.

In closing, I want to thank each of the Regions, States, and local agencies for their efforts to successfully implement the $PM_{2.5}$ monitoring program through its first year. We have made significant progress toward establishing our goals for this period, and I am confident that we will be able to overcome the many challenges awaiting each of us in FY 1999.

Attachments

cc: J. Bachmann, OAQPS
T. Curran, ITPID
W. Hunt, EMAD
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Regional Office, Air Division Director, Regions I - X

U.S. EPA FY 1999 State and Local Agency Grant Guidance and Allocation
Fine Particulate ($PM_{2.5}$) Ambient Air Monitoring Program
October 1998

This document contains the U.S. EPA's FY 1999 grant guidance and allocation for the $PM_{2.5}$ ambient air monitoring program. The Agency is providing this information for use by State and local agencies, and U.S. EPA Regional Offices, as a planning resource for the upcoming $PM_{2.5}$ monitoring program grant negotiations in FY 1999.

This allocation represents the Agency's proposal for the second year of the $PM_{2.5}$ monitoring program including federal reference method (FRM) measurements, chemical speciation sampling and analysis, and continuous monitoring. The Agency is modifying its approach to the deployment of the network by increasing the sampling frequency at various speciation sites, adding more continuous monitoring sites, decreasing the number of FRM measurement sites, and updating the cost estimates for equipment and labor from figures used in the FY 1998 budget, as necessary. The network changes stem from two sources including:

- The 1998 National Research Council, National Academy of Sciences' (NAS) report, "Research Priorities for Airborne Particulate Matter." This report recommended, among other activities, that the Agency reexamine its emphasis on FRM measurements with consideration for increasing speciation analyses and continuous measurements.

- State and Local Agencies. State and local agencies have requested that the U.S. EPA increase the flexibility in the $PM_{2.5}$ network's design by allowing them more choices in determining the mix of FRM, speciation, and continuous measurements used within their networks. The U.S. EPA agrees with this approach and is requesting through this guidance that the Regional Offices provide this flexibility in FY 1999.[1] Through the grant negotiation process, the Regions and State/local agencies are expected to shift resources among the funding categories to obtain the best mix of FRM, speciation, and continuous monitoring sites based upon the needs of that area. Furthermore, we expect that this flexibility will enable State and local agencies to align their monitoring programs with basic scientific objectives by establishing, where practical, collaborative and/or coordinated arrangements with appropriate research organizations.

Attachment A lists the Region-by-Region allocation for each program element including capital and operation and maintenance (O&M) categories for site capital expenditures, laboratory upgrades, FRM sampling, visibility monitoring for the Interagency Monitoring of Protected Visual Environments (IMPROVE), chemical speciation sampling and analysis, and continuous monitoring. Attachment B provides explanations for each of the 30 columns included within

[1]Each State and local agency is required to meet their minimum number of FRM (848 nationwide), continuous (1 per MSA > 1,000,000), and speciation (~50 trends sites nationwide) monitoring sites as described in 40 CFR 58 and supported through available guidance.

Attachment A. Attachment C provides unit pricing information used within this allocation that may be useful in determining how to break out local agency program costs within each State allocation total. Some general items to consider follow.

FRM Measurements: The Agency is funding 12-months of O&M for each of the FRM sites established in 1998; new FRM sites including equipment capital and O&M; spare FRM samplers for each State; filters for the FRM samplers; and the nationwide implementation of the Performance Evaluation Program as required by regulation. The U.S. EPA Regional Office monitoring contacts have surveyed the State and local agencies about their interest in ordering new FRM samplers from U.S. EPA's National $PM_{2.5}$ Sampler Procurement Contract in FY 1999. These results indicate that most State and local agencies are hesitant to participate because of concerns they have regarding vendor choice issues. Therefore, U.S. EPA is not holding these funds as a national tap in FY 1999. State and local agencies are still able to purchase their equipment through the National $PM_{2.5}$ Sampler Procurement Contract at any time; however, funds will need to be returned to the Office of Air Quality Planning and Standards (OAQPS) for these purchases. National taps for filter purchases and the Performance Evaluation Program are being held by the OAQPS.

In light of the Agency's revised approach toward the $PM_{2.5}$ network, Regional Offices and State and local agencies will need to review the existing $PM_{2.5}$ networks and to identify any modifications to FRM site locations that were proposed earlier. The Agency strongly encourages a careful assessment of the need for additional FRM sites to be added in 1999 that produces a network extending far beyond the regulatory FRM site requirements.

IMPROVE Monitoring: A national tap of $3.14 million is being held for distribution to the IMPROVE Program. This tap funds the O&M for sites established in 1998 as well as new sites to be established in 1999. The distribution of new sites among States shown in this guidance is a proposal and is expected to change. The IMPROVE Siting Strategy[2] is a separate process, led by the IMPROVE Steering Committee including its State and local agency representatives, that solicits input from all State and local agencies on the exact location of these sites.

Chemical Speciation Measurements: The U.S. EPA is providing funding for purchasing the speciation samplers, their O&M, capital for site establishment, and lab analysis of the speciation sampler filters. The chemical speciation program funding includes the 53 "trends" sites which will operate on one in three day schedules, and the 248 additional sites which are likely to operate on one in six day schedules in most areas. In delineating between the 53 "trends" sites and the 248 additional sites, the Agency intends to be very prescriptive on the operation of the "trends" sites. The number of additional sites (248) is to be considered as a planning estimate. These 248 additional sites are intended to be used by State and local agencies to address regional and area specific problems. The Agency is not holding to a strict national number of 248 sites, or

[2]Reference letter of August 31, 1998, to STAPPA/ALAPCO from Marc Pitchford, IMPROVE Steering Committee Chair, available at www.epa.gov/ttn/amtic/amticpm.html.

to a standard one in six days sampling frequency. Decisions about the location, sampling equipment, and operating schedules for the 248 additional sites generally are expected to be made at the State or local agencies' discretion. Those agencies that propose alternative approaches such as dedicated sampling during known problem seasons, performing extended chemical analyses to determine actual organic compounds, or operating emerging advanced samplers will be viewed favorably so long as appropriate justification is provided. Further guidance on this program element is provided in the Speciation Guidance Document available through the Agency's Internet site (http://www.epa.gov/ttn/amtic/pmspec). The funds for all samplers and all laboratory analysis are being held as national taps for purchase under national procurement vehicles. Deviations from this national purchasing approach may occur, and as appropriate, the OAQPS will return grant funds to the Regions for distribution as necessary.

Another important consideration for State and local agencies as they develop their routine chemical speciation programs is the role that this element will have for those areas that participate in the $PM_{2.5}$ Supersites Program. The Supersites Program design will require its participants to coordinate their efforts with the State and local agencies that are operating routine chemical speciation sampling in those same areas. From both a scientific and resource management perspective, it is critical that the Supersites Program and the routine State and local agency-operated chemical speciation networks are coordinated and used to enhance each other.

The chemical speciation program will continue to evolve as the speciation samplers are evaluated and as the laboratory support contracts are established. Furthermore, the Agency is submitting the chemical speciation program to the Clean Air Science Advisory Committee (CASAC) and NAS panel for their consideration. Because of the current uncertainty in sampler selection, program execution, and for some agencies, the impact of the Supersites program, and CASAC review, we request that each Region hold these grant funds for awards later in FY 1999. The speciation sampler evaluation report is expected by March 1, 1999, and the sampler selection will be made immediately thereafter. Draft speciation network descriptions should be submitted by the State and local agencies to the Regional Offices within 30 days after the sampler is selected (April 1999), and final network descriptions should be submitted with the States' required $PM_{2.5}$ network review report due on July 1, 1999.

Beginning in FY 2000, the Agency intends to increase the sampling frequency to everyday speciation sampling at ten chemical speciation sites to support health effects studies in those areas (appropriate funding will be provided). The selection and location of these ten sites will be coordinated with the scientific community and the impacted State and local agencies.

Continuous Monitoring: The Agency is providing funding for sites that were established in FY 1998 by States who chose to use their State and Tribal Assistance Grants funding for this purpose, along with the capital and O&M to establish and operate new sites in FY 1999, including those required for metropolitan areas with populations greater than one million and sites in smaller metropolitan areas or smaller cities. None of the funding for continuous monitoring is being held as part of a national tap.

Continuous monitoring will be used for public reporting of fine particle levels in populated areas. The Agency encourages State and local agencies to investigate ways of displaying and publicizing this information electronically where possible. The Agency's Environmental Monitoring for Public Access and Community Tracking program for ozone air pollution reporting has been very successful in presenting data in a format that is quickly understood. We encourage State and local agencies and Regional Offices with an interest in pursuing real-time $PM_{2.5}$ data reporting to contact the OAQPS.[3]

Data Analysis Plans: The Agency is providing data management funding within the O&M allocation and intends to request funding in FY 2000 for data analysis activities including the development and initiation of $PM_{2.5}$ data analysis plans. These plans can be issued by each reporting organization or consolidated in a reasonable manner. Because implementation activities will be ongoing during FY 1999, the Agency recognizes that emphasis for data analysis will be on planning and quality assurance of data and not actual performance of more advanced analyses. The Agency intends to issue guidance on $PM_{2.5}$ analysis in mid-1999. State and local staff are encouraged to participate in the development of this guidance document.[4]

Initially, data analysis will be needed to evaluate the effectiveness of the monitoring networks to assess attainment of the National Ambient Air Quality Standards and to project likely attainment status. Soon after, data analysis will be needed to investigate sources, control strategies, and ultimately trends. The goal of the FY 1999 analyses plans should be to build the infrastructure for mature and sophisticated data analysis programs that must handle the extensive and complex data produced by this new monitoring program. Sophisticated data analysis will be needed to support State Implementation Plan development. Note that FY 2000 guidance will stipulate that the State and local agencies should provide a report documenting their initial data assessments by April 2000. The State and local agencies can perform the analyses in-house or rely on the academic community or contractors. Use of the speciation data in particular will be a focus of the CASAC review of the overall chemical speciation program.

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[3]The OAQPS contact for real-time data reporting is Chet Wayland with the Information Transfer Group, 919-541-4603.

[4]See 'The Virtual Workgroup for the Fine Particle Analysis Workbook' web site at http://capita.wustl.edu/PM Fine.

Attachment A. FY-1999 PM2.5 MONITORING PROGRAM - STAG BUDGET UNDER 103 AUTHORITY 29-Oct-98

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			FRM Sampler Costs						Oper. & Maint. for FRMs (a)			TAP	TAP		TAP	Routine Chemical Speciation Program					
		Lab					Total #	Total #	Existing	New			IMPROVE				Collocated		TAP		TAP
	Site	Weighing Room	New FRM	Spares & Collocated	Sampler	# Req'd	FRM Sites Originally	FRM Sites Allocated	FRM	FRM	Total	Filter Costs	Distribution	Network	QA-FRM Performance	Speciation Samplers			Sampler		Lab
Region	Capital	Upgrades	Sites	Samplers	Cost	Sites	Allocated	Now	Sites	Sites	O&M	for CY-2000	of Sites	Tap	Eval. Cost	1 in 3	1 in 3	1 in 6	Cost	O&M	Analysis
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17a)	(17b)	(18)	(19)	(20)	(21)
Reg I	$337,430	$0	8	14	$288,224	57	94	72	64	8	$1,379,269	$63,196	1	$87,222	$114,213	6	1	21	$532,000	$160,300	$392,700
Reg II	$518,490	$0	18	15	$422,498	69	93	76	58	18	$1,965,119	$81,821	0	$29,074	$103,506	4	1	29	$646,000	$178,900	$438,350
Reg III	$436,190	$60,000	11	16	$353,730	84	131	105	94	11	$2,033,015	$85,923	0	$58,148	$167,751	5	0	26	$589,000	$165,100	$404,525
Reg IV	$790,080	$300,000	20	22	$550,246	167	254	201	181	20	$3,520,919	$158,697	4	$348,889	$408,010	8	0	50	$1,102,000	$302,800	$741,950
Reg V	$699,550	$120,000	26	20	$602,651	148	227	188	162	26	$3,291,040	$133,692	2	$87,222	$289,103	6	1	39	$874,000	$243,100	$595,650
Reg VI	$584,993	$60,000	11	21	$419,235	104	175	126	115	11	$2,245,434	$105,511	6	$319,815	$205,227	5	1	21	$513,000	$151,200	$370,425
Reg VII	$172,830	$60,000	6	9	$196,517	54	90	65	59	6	$910,783	$38,042	2	$58,148	$105,291	3	0	8	$209,000	$64,100	$157,025
Reg VIII	$205,750	$0	7	13	$262,022	38	85	61	54	7	$764,321	$29,231	17	$901,296	$96,368	4	0	8	$228,000	$73,200	$179,300
Reg IX	$559,640	$180,000	6	13	$248,921	87	134	111	105	6	$2,719,740	$146,572	13	$668,704	$187,381	9	2	38	$931,000	$274,900	$673,475
Reg X	$329,200	$60,000	24	16	$524,044	40	109	72	48	24	$966,072	$40,728	13	$581,481	$255,660	3	0	8	$209,000	$64,100	$157,025
Totals	**$4,634,153**	**$840,000**	**137**	**159**	**$3,868,087**	**848**	**1392**	**1077**	**940**	**137**	**$19,795,712**	**$883,413**	**58**	**$3,140,000**	**$1,932,510**	**53**	**6**	**248**	**$5,833,000**	**$1,677,700**	**$4,110,425**

NOTE --- table is wrapped

	Continuous Monitoring							Allocation Summary		
	Sites	O&M for	Required	Costs for	Est.		Costs for	Total	TAP From	Net Allocation
Region	Est. in 1998	Established Sites	Sites (Pop.> 1,000,000	Required Sites	Add'l Sites	Collocated Sites	Add'l Sites	Allocation	103 Grants	to States
(1)	(22)	(23)	(24)	(25)	(26a)	(26b)	(27)	(28)	(29)	(30)
Reg I	5	$50,000	2	$60,000	4	0	$120,000	**$3,584,555**	**$1,189,332**	**$2,395,223**
Reg II	0	$0	8	$240,000	4	1	$150,000	**$4,773,758**	**$1,298,751**	**$3,475,007**
Reg III	0	$0	5	$150,000	6	0	$180,000	**$4,683,382**	**$1,305,348**	**$3,378,035**
Reg IV	0	$0	8	$240,000	10	0	$300,000	**$8,763,590**	**$2,759,545**	**$6,004,045**
Reg V	0	$0	8	$240,000	6	0	$180,000	**$7,356,007**	**$1,979,667**	**$5,376,341**
Reg VI	0	$0	5	$150,000	29	0	$870,000	**$5,994,841**	**$1,513,979**	**$4,480,862**
Reg VII	7	$70,000	2	$60,000	2	1	$90,000	**$2,191,735**	**$567,505**	**$1,624,230**
Reg VIII	0	$0	2	$60,000	4	0	$120,000	**$2,919,488**	**$1,434,195**	**$1,485,293**
Reg IX	0	$0	9	$270,000	6	2	$240,000	**$7,100,333**	**$2,607,132**	**$4,493,201**
Reg X	0	$0	2	$60,000	3	1	$120,000	**$3,367,311**	**$1,243,895**	**$2,123,416**
Totals	**12**	**$120,000**	**51**	**$1,530,000**	**74**	**5**	**$2,370,000**	**$50,735,000**	**$15,899,348**	**$34,835,652**

Attachment B.
Explanations for Table Titled
"FY-1999 $PM_{2.5}$ Monitoring Program -
STAG Budget Under 103 Authority"
(Revised: October 1, 1998)

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NOTE: Funding that is being held by EPA as a national tap is indicated by the word "TAP" in the column heading on this attachment as well as attachment A.

1. Column 1, Regions

   - **!** Listing of U.S.EPA Regions

2. Column 2, Site capital costs

   - **!** This column reflects the capital costs associated with the purchase and installation of the samplers shown in columns 4, 17a, 18, 24 and 26a. These costs include the one-time costs for network design, equipment procurement and installation, site installation, site preparation, power drops, training, platforms. (Costs for writing quality assurance project plans was provided in FY-1998.) The cost estimate used in this spreadsheet, per sampling site is $8,230.

3. Column 3, Laboratory and weighing room upgrades

   - **!** Laboratory upgrades will be provided at the rate of $60,000 per facility, and will include the weighing facility for constant temperature and humidity, microbalance, and refrigerator. The FY-1998 allocation provided one facility for each State. Some States will require more than one facility, and costs for these additional facilities are funded in FY-1999.

Columns 4-13 - FRM Mass Sampling Costs.

4. Column 4, New FRM sites purchased

   - **!** The State-by-State distribution of the total number of FRM sites purchased in FY-1999 are displayed here.

5. Column 5, Number of spares and collocated FRM samplers

   - **!** A collocated sampler is allocated for 25 percent of the new FRM/FEM sites shown in column 4. Some adjustments were made for those States where only one sampler is ordered, what was ordered in FY-1998, and what would be needed to fulfill the required collocation of 25%. Additionally, most States will be provided with 2 spare FRM samplers. Exceptions include: Puerto Rico and the Virgin Islands each receive 1 spare, PA, OR and WA each receive 3 spares, NY receives 5 spares, and CA receives 6 spares.

6. Column 6, Sampler Cost

- In order to estimate the total cost of FRM samplers purchased in FY-1999, we assume that 95 percent of the FRM/FEMs will be sequential samplers and 5 percent will be single channel samplers. Unit prices are based on the average cost for these samplers with accessories as available from the National $PM_{2.5}$ Sampler Procurement Contract, plus $100/unit added for shipping. Specifically, for a sequential FRM, the average unit cost is $13,360, and for a single channel FRM, the average unit cost is $8,182. Accessories as specified under the National $PM_{2.5}$ Sampler Procurement Contract include:
  Single channel samplers: shipping charges from vendor to State/local agency; 3 additional impactor wells and 3 sets of anti-spill rings; 4 sets of additional filter cassettes, backing screens, and transport containers; 2 sets of additional inlet O-rings; 100 milliliter (ml) impactor oil; and, 50, 37mm diameter glass fiber filters for impactor wells.
  Sequential samplers: shipping charges from vendor to State/local agency; 3 additional impactor wells and 3 sets of anti-spill rings; 8 sets of additional filter cassettes, and backing screens; 2 sets of additional inlet O-rings per inlet; 100 ml impactor oil; 50, 37mm diameter glass fiber filters for impactor wells; and, accessories required for collection, storage and transport of sequential samples.
  In addition to the FRM costs, the capital cost includes the 291 speciation modules at a subset of the sites to collect samples on other filter media. These costs also include the estimated cost of accessories for the speciation samplers, which include:
  Spare parts beyond those accessories listed above for each sampler type are assumed to be part of routine operation of the $PM_{2.5}$ network, and costs for these spare parts are included as part of the Operation and Maintenance (O&M) costs in column 12.

7. Column 7, Number of Required Sites

- This column displays the total number of required community-oriented and other sites as directed within 40 CFR 58. The national total is 848 sites (~100 of which are for background and transport measurements). This figure is provided for comparison purposes against the total number of FRM samplers purchased and installed as in columns 10 and 11.

8. Column 8, Total number of FRM Sites Originally Allocated

Cost estimates provided in FY-1998 showed more FRM samplers than currently expected to be funded in FY-1999 due to the increased investments in speciation sampling and continuous monitoring. This column lists, by State, the original distribution of these 1,392 FRM samplers.

9. Column 9, Total number of FRM Sites Allocated Now

This column is the sum of the FRM sites established in 1998 plus those sites anticipated in 1999. (The sum of columns 10 and 11.)

10. Column 10, Existing FRM samplers

- These FRM sampling sites were purchased with FY-98 funds.

11. Column 11, New FRM sites

- The distribution of the new FRM sites in FY-1999 from column 4 are repeated again in this column.

12. Column 12, Total operation and maintenance (O&M)

- These totals are the O&M costs for the samplers shown in columns 10 and 11. Assumptions include: A) all collocated monitoring samples on a 1 in 6 day schedule; B) existing FRMs and existing non-reference samplers funded for the full year; and, C) new FRMs funded for 10 months of the year. Specific cost estimates include the following amounts:
  12 months of operation for sites installed in 1998:
  everyday @ $34,918.
  1 in 3 days @ $11,639.
  1 in 6 days @ $5,820.
  10 months of operation for the new FRMs anticipated to be purchased in 1999:
  1 in 3 days @ $9,700.
  1 in 6 days @ $4,850.

13. Column 13, TAP-Filter costs for CY-2000.

- Filters will be procured, tested, and distributed to the State/local agencies for use in CY-2000. This cost includes the 46.2 mm teflon for $PM_{2.5}$ sampling, quartz and nylon for speciation analysis, and 37 mm teflon for the dichotomous samplers. The cost also includes the acceptance testing of the filters.

Columns 14-15 - IMPROVE Aerosol Monitoring.

14. Column 14, TAP-IMPROVE distribution of sites

- There will be 58 IMPROVE $PM_{2.5}$ sites funded through the $PM_{2.5}$ §103 grant program in FY-1999, plus operational costs for 50 IMPROVE sites that were established in FY-1998. The estimated distribution of the 58 sites are shown in this column. The estimated distribution of the 50 sites funded in FY-1998 were

shown on the FY-1998 budget. (The final locations of these sites will be determined at a later date; however, the total number of sites is not expected to vary.)

15. Column 15, TAP-IMPROVE network tap

- **!** The allocation for the IMPROVE network is for $3,140,000, and these costs are evenly distributed on a per site basis for the deployment of the 58 sites in FY-1999, and for the operation of sites established in FY-1998.

Column 16 - Performance Evaluation Program.

16. Column 16, TAP-QA-FRM performance audit cost

- **!** The allocation for the FRM performance audit (now called the performance evaluation) was divided up by Region. The allocation per State for purposes of display on this table was allocated based on the percentage of samplers in the network established in FY-1998. It is assumed that two laboratories will be used for this support (at present these have been identified in Regions 4 and 10). This total cost also includes the purchase of portable FRM audit samplers from the National $PM_{2.5}$ Sampler Procurement Contract. These portable audit samplers will be used to support the national independent FRM audit program. Accessories purchased along with these samplers through the National $PM_{2.5}$ Sampler Procurement Contract will include shipping charges, additional impactor wells and anti-spill rings, additional filter cassettes, backing screens, transport containers, additional inlet O-rings, impactor oil, and 37mm diameter glass fiber filters for impactor wells.

Columns 17a-21 - "Routine" Chemical Speciation Program.

17a. Column 17a, Routine Chemical Speciation Program - Filter speciation samplers operated 1 in 3 days (trends sites)

- **!** EPA is providing funding for the purchase of speciation samplers in FY-1999 from the National $PM_{2.5}$ Sampler Procurement Contract (or other sources), and this column shows the distribution by State of the 53 "trends" sites.

17b. Column 17b, Collocated 1 in 3

- Funding for 6 collocated speciation samplers, operating on a 1 in 3 day schedule, is provided in the FY-1999 budget. These samplers will be located at six different routine chemical speciation "trends" sites.

18. Column 18, Routine Chemical Speciation Program - Filter speciation samplers operated 1 in 6 days

- The majority of speciation samplers are expected to operate on a 1 in 6 day schedule for FY-1999. An estimate of the number and location (by State) of these samplers is listed here.

19. Column 19, TAP-Sampler Cost

- The cost of the speciation samplers described in columns 17a & b, and 18 is estimated to be $19,000 each.

20. Column 20, Routine Chemical Speciation Program - O&M

- The cost per site for the speciation program is estimated to be ~115% of the average annual cost for the FRM O&M. For the FY-1999 allocation, we expect that the speciation samplers will be operated for approximately **b** (8 months) of the year; therefore, the O&M is funded at **b** of the total annual cost. Annual costs are estimated to be as follows:
  Operating everyday @ $40,156.
  Operating 1 in 3 days @ $13,385.
  Operating 1 in 6 days @ $ 6,693.

21. Column 21, Routine Chemical Speciation Program - TAP-laboratory analysis.

- **!** These estimates are calculated on a per site basis from the number of samplers purchased as in columns 17a, 17b, and 18. The laboratory analysis cost is estimated to be $275 per sampler, and we assumed that the 53 required speciation sites would sample on a 1 in 3 day frequency, and any remaining sites would sample on a 1 in 6 day frequency. Two-three national laboratories will be used to conduct this work, and these funds are held as part of a national tap.

Columns 22-27 - Continuous Monitoring Program.

22. Column 22, Continuous monitoring - Sites established in 1998

- Some States purchased continuous samplers in lieu of FRMs using their FY-1998 budget allocation. This column shows the State-by-State distribution of these sites.

23. Column 23, Continuous monitoring - O&M for established sites

- The O&M costs for the previously purchased samplers from FY-1998 are provided in the FY-1999 budget at the rate of $10,000 per site.

24. Column 24, Continuous monitoring - Required sites (population > 1,000,000).

- **!** The distribution by State of the continuous $PM_{2.5}$ monitors is provided here, based on those PMSA/MSAs greater than 1,000,000 population. These sites are required under 40 CFR 58. If these samplers were purchased in FY-1998, they are listed under column 22.

25. Column 25, Continuous monitoring - Costs for required sites.

- **!** This is the cost for the samplers identified in column 24 plus their operation and maintenance as identified in earlier budget estimates. An estimate of $20,000 for each continuous sampler plus $10,000 for its operation was used to calculate these costs.

26a. Column 26a, Continuous monitoring - Additional sites.

- **!** Based on input from the scientific community and the State/local agencies, EPA expects that investments in additional continuous monitoring will be made in FY-1999. In general, this allocation of sites is based on those areas with populations between 500,000 and 1 million people, plus one sampling site for those States that would not otherwise have any continuous monitoring.

26b. Column 26b, Collocated Sites.

- Limited collocated monitoring will occur at 5 continuous monitoring sites to investigate precision of these methods.

27. Column 27, Continuous monitoring - Costs for additional sites.

- **!** This is the cost for the samplers identified in columns 26a and 26b (@$20,000 each), plus their operation and maintenance (@$10,000 each).

Columns 28-30 - Summary of the FY-1999 Allocation.

28. Column 28, Total allocation

- **!** The total allocation for FY-1999 is $50,735,000, and this column shows the distribution for each State and Region.

29. Column 29, Tap from 103 grants

- **!** This column shows the dollars which will not be a part of the allocation distributed directly through the grant awards to the State. These funds will be held by OAR as a national tap to pay for portions of this program that are supported by national procurement contracts and national service contracts. These totals consist of the

capital cost of the $PM_{2.5}$ speciation samplers as shown in column 19, and the items noted in columns 13-16 for filters, the IMPROVE network, and the FRM performance audits, and the routine chemical speciation laboratory analysis cost from column 21. This total is expected to change if any State/local agencies decide to pursue obtaining these items independently, in which case EPA will return this money to the appropriate State or local agency.

30. Column 30, Net allocation to the State

- **!** This shows the allocation for each State, and is the difference of column 28 minus column 29.

Attachment C. Unit Costs - PM2.5 Monitoring Program

07-Oct-98

Item/Activity	One-time Cost Per Unit/Site	Ongoing Cost Per Unit/Site
Network design (per site)	*$1,800*	
Site installation - procurement (per site)	*$350*	
Site preparation (per site)	*$3,300*	
Power drop (per site)	*$380*	
Equipment installation (per site)	*$300*	
Platform (per site)	*$1,800*	
FRM System operation training	*$300*	
TOTAL - Miscellaneous Site Capital Costs	**$8,230**	
FRM sampler - sequential with accessories & shipping	**$13,360**	
FRM sampler - single channel w/ accessories & shipping	**$8,182**	
FRM filters (per filter under nat'l contract terms)		**$1.85**
Nylon filters (per filter)		**$0.58**
Quartz filters (per filter)		**$0.70**
FRM filter acceptance testing (for the nation, per year)		**$35,000**
Operations & Maintenance (per FRM site) depends upon sampling frequency as follows:		
Everyday sampling for 12 months		**$34,900**
1 in 3 day sampling for 12 months		**$11,640**
1 in 6 day sampling for 12 months		**$5,820**
O&M costs per site as listed above includes the following activities and items:		
Site lease agreement (per site - will vary significantly between areas)		*$500*
Supplies (per site)		*$400*
Utilities (per site - will vary with utility rates for each city)		*$300*
Site Service & Maintenance (per site, varies with frequency, everyday shown here)		*$12,000*
Filter weighing activities (per site, varies with frequency, everyday shown here)		*$15,700*
Data management & analysis (per site, varies with frequency, everyday shown here)		*$5,000*
QA activities		*$1,000*
FRM Sampler O&M		*$34,900*
Laboratory upgrade & equipment (cost per laboratory)	**$60,000**	
Speciation sampler (with accessories & shipping)	**$19,000**	
Speciation filter analysis (per sample)		**$275**
Operations & Maintenance (per FRM site) depends upon sampling frequency as follows:		
Everyday sampling for 12 months		**$40,135**
1 in 3 day sampling for 12 months		**$13,386**
1 in 6 day sampling for 12 months		**$6,693**
Continuous sampler (will vary between sampler types)	**$20,000**	
Continuous sampling O&M for 12 months		**$10,000**
QA - FRM performance evaluation (nat'l implementation per site)		**$1,785**
(based on 940 FRM sites established in CY98, includes portable samplers & labor at sites)		
QA - Portable audit sampler (with accessories & shipping)	**$9,778**	

All in 1999 dollars.

FRM and portable sampler costs are based on the average unit prices available through EPA's national contracts.

All prices are national averages and can be expected to vary across the country, and with equipment selection.

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