

QA Strategy Workgroup Session
25th Annual Conference on Managing Environmental
Quality Systems
April 27, 2006

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QA National Meeting Week At-A-Glance

Monday April 24, 2006			
8:30 a to 12:00 n	Systematic Planning Using the DQO Process	Environmental Sampling: Quality Assurance in the Field	Ambient Air- Speciation Trends Network Field Auditing Training
12:00n to 1:00p	Lunch		
1:00p to 5:00 p	Data Quality Assessment: A Reviewers Guide	Continuation- Environmental Sampling: Quality Assurance in the Field	Continuation - Ambient Air- Speciation Trends Network Field Auditing Training
Evening Session			Ambient Air - Turbo QAPP Workshop & Review

Tuesday April 25, 2006	
8:30 a to 12:00 n	Plenary Session Opening Address, Invited Speakers, Keynote Address
12:00n to 1:00p	Lunch
1:00p to 5:00 p	Awards and Panel Discussions

Wednesday April 26, 2006 Ambient Air Technical Sessions	
8:30 a to 12:00 n	Sutsu Chen - (Taiwan) - The long-dependence of air quality data. Greg Noah - Ambient Air Monitoring and QA in the Hurricane Katrina Disaster Relief Jonathan Miller - QA and Data Issues Related to AQS Catherine Brown - Electronic Recordkeeping and the National Ambient Monitoring QA Program Melinda –Ronca Battista- A Tools for Small Organizations -- Tribal Air Monitoring Support Center Updates. Anna Kelly - SOPs friend or foe?
12:00n to 1:00p	Lunch
1:00p to 5:00 p	Mike Ray - Performance auditing of a human air pollution exposure chamber for PM2.5 Dennis Crumpler - Growth of Field Audit Program for EPA's Speciation Trends Network. Jeff Lantz- Speciation Monthly Sampler Performance Verification Form Avraham Teitz - Improving Portability and Reducing Cost in the TTP Performance Laboratory Mark Shanis – Status and Changes in EPA Infrastructure for Bias Traceability to NIST

Thursday April 27, 2006 Ambient Air QA Strategy Workgroup Session		
8:30 a to 2:30 n	Issue #	Title
	4	Issues related to the 1/17/06 regulations
	9	PM2.5 FRM vs. continuous monitors.
	3	Status of the Redbook revisions.
	7	The QA requirements for the three precursor gas analyzers
	15	What are the most important things to get accomplished next year
	11	Independence definition for implementation of NPAP and PEP.
	16	How to improve QA communication with STAPPA /ALAPCO committees
	10	Discussion on Nation-wide data validation and MQOs criteria for continuous PM methods.
	2	QA auditor training/verification/certification.
	6	Cross training of QA auditors between states/regions, etc.
	8	National training center for certification/training of ambient air quality/meteorological auditors.
	1	AQS Nomenclature
	5	National Toxics Trends Network AQS Flagging List Review
	12	Problems with inconsistency of flow audit devices.
	14	Training/certification of contractors/consultants for ambient air and meteorological monitoring
	13	PM2.5 speciation monitoring and new installation of Improve module

Ambient Air Related Presentation for the 25th Annual National Conference on Managing Environmental Quality Systems in Austin, TX			
Time	Paper #	Title	Lead Author
Session I- Facilitator Mike Papp			
8:30-9:00	36	The long-dependence of air quality data.	Sutsu Chen -
9:00-9:30	49	Ambient Air Monitoring and QA in the Hurricane Katrina Disaster Relief	Greg Noah
9:30-10:00	11	QA and Data Issues Related to AQS	Jonathan Miller-
BREAK 10:00-10:30			
Session II Facilitator- Dennis Crumpler			
10:30-11:00	84	Electronic Recordkeeping and the National Ambient Monitoring QA Program	Catherine Brown
11:00-11:30	134	QA Tools for Small Organizations -- Tribal Air Monitoring Support Center Updates.	Melinda Ronca-Battista
11:30-12:00	42	SOPs friend or foe?	Anna Kelly
Break 12:00-1:00 (Lunch)			
Session III Facilitator - Anna Kelley			
1:00-1:30	12	Performance auditing of a human air pollution exposure chamber for PM2.5	Mike Ray
1:30-2:00	105	Growth of Field Audit Program for EPA's Speciation Trends Network	Dennis Crumpler
2:00- 2:30	122	PM2.5 Speciation Monthly sampler Performance Verification Form	Jeff Lantz
BREAK 2:30-3:00			
Session IV Facilitator – Jeff Lantz			
3:00- 3:30	28	Improving Portability and Reducing Cost in the TTP Performance Laboratory	Avraham Teitz
3:30-4:00	53	Status and Changes in EPA Infrastructure for Bias Traceability to NIST	Mark Shanis

Issues for Discussion Thursday April 27th 8:30-2:30

Issue #	Title
4	Issues related to the 1/17/06 regulations
9	PM2.5 FRM vs. continuous monitors.
3	Status of the Redbook revisions.
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11	Independence definition for implementation of NPAP and PEP.
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Ambient Air Monitoring Quality System Progress Report

QA Strategy Workgroup Session
at the
25th Annual Conference on Managing
Environmental Quality Systems
April 27, 2006

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Discussion Items

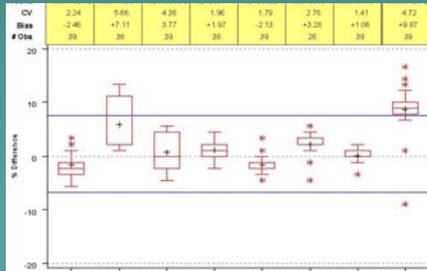
- ◆ 8:30-9:30- What we've been up
- ◆ 9:30- 1:30 Issues (breaks included...maybe)
- ◆ 1:30-2:30 Plans for Improvements and Wrap-up

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AMP255 Report P&B

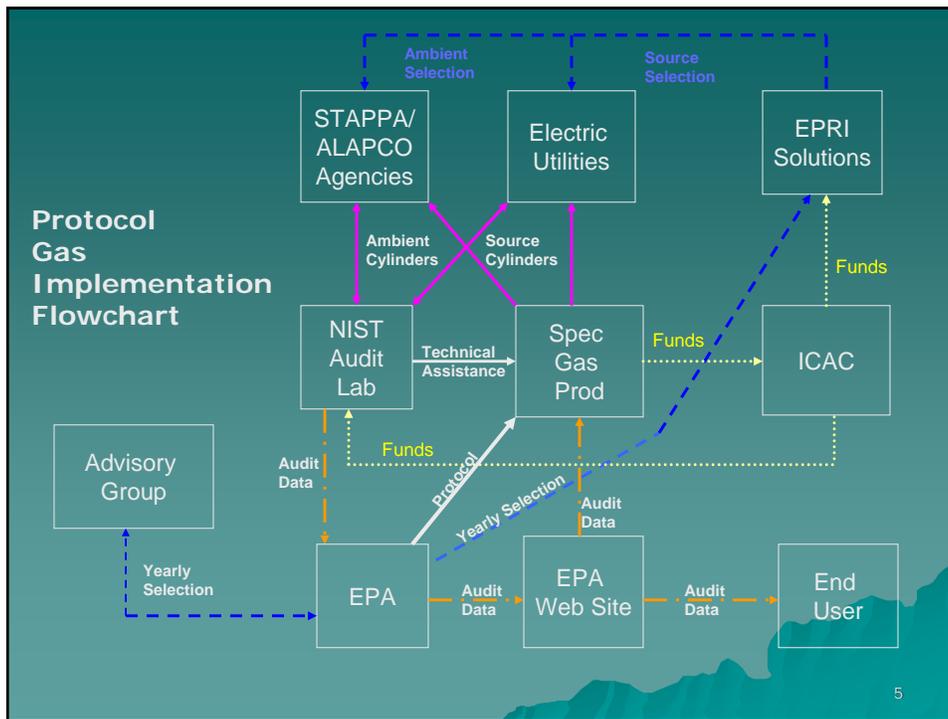
- ◆ Available on AQS & annually on AMTIC
- ◆ Provided WebEx demonstration for users
 - Instructions on AMTIC
- ◆ Can develop reports any time
- ◆ Graphics currently not available
- ◆ PM2.5 and PM10 Completeness not working because of incomplete primary monitor definitions (see attachment and OA EYE Issue 2)

Region	State	Agency	Site	CFR Lower Limit	CFR Upper Limit	Bias UB	CV UB
01	CT	0251	090010017	NA	NA	-4.48	1.32
01	CT	0251	090011123	NA	NA	-5.38	2.09
01	CT	0251	090013007	NA	NA	-3.12	0.90
01	CT	0251	090019003	NA	NA	-2.03	2.27
01	CT	0251	090031003	NA	NA	-4.96	1.61
01	CT	0251	090050006	NA	NA		
01	CT	0251	090070007	NA	NA	-2.35	2.02
01	CT	0251	090090027	NA	NA	-2.15	0.88
01	CT	0251	090093002	NA	NA	-3.94	0.90
01	CT	0251	090099005	NA	NA		
01	CT	0251	090110008	NA	NA	+3.57	3.05
01	CT	0251	090131001	NA	NA	-3.87	1.34
01	CT	0251	All - NSP	-7.61	+2.56	-3.37	2.74



Protocol Gas Program

- ◆ Yes it's started
- ◆ Will switch between ambient and source programs - this year source
- ◆ OAQPS and Clean Air Markets Division (CAMD) developing an Implementation Plan. Draft expected this summer
- ◆ Specialty Gas Producers pay
- ◆ Ambient cylinder selection process will be voluntary
 - You pay for shipment to NIST
 - NIST will pay for shipping back to you



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Graded Approach to QA

- ◆ Sent document to EPA Regional QA Managers for review
- ◆ Attended March Regional Office QA Conference call
- ◆ Basically 9 of 10 Regions provided positive feedback on approach and could find it acceptable
 - Some minor edits required that would provide some flexibility to approach
- ◆ Will make revisions, distribute to QA Strategy Workgroup, and back to Regional QA Managers for endorsement.
- ◆ Language will be included in QA Handbook

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Met QA Work- D. Mikel

Phase 1 – Investigation & Research

- ◆ Assess current meteorological monitoring efforts at SLTs to determine their needs
- ◆ Investigation of Meteorological data in AQS
- ◆ Survey SLTs agencies

Phase 2 - Developing a Strategy

- ◆ Synthesize all elements of Phase 1 to create concise guidance on appropriate meteorological monitoring
- ◆ Incorporate this guidance into the National Ambient Air Monitoring Strategy (NAMMS), specifically NCore network design.

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Survey Issues/Recommendations

Common issues with meteorological monitoring:

Primary Issue:

Many SLT agencies are hesitant to use the meteorological data they collect because of uncertainty in data quality.

Several SLTs have trouble accessing meteorological data both from their own agency and from neighboring agencies.

Some traditional meteorological monitoring methods (e.g. siting criteria) are not appropriate for air quality applications.

Recommendation:

Quality Assurance (QA) requirements at NCore multi-pollutant sites to promote better data quality.

Enhance EPA's databases (e.g. AIRNow and AQS) to improve their capability for storing and sharing meteorological data.

Create measurement methods specific to meteorological monitoring for air quality management. Specifically, investigate ways to appropriately use met data from a tower that may not be "perfect."

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EPA Volume IV

This version would be:

- Targeted for SLTs that may or may not have meteorologists on staff
- Be “user friendly”
- Have useful information – more of the “how to”
- Have less technical information
- Have a number of “hot links” to documents that exist on the Internet
- Have clear Measurement Quality Objectives (MQOs) on different types of monitoring needs
- A working prototype station on EPA-RTP’s campus to serve training and NCore network design purposes
- Volume IV Re-write workgroup formed December 2005
 - First Draft: May 1, 2006
 - Second Draft: Sept 1, 2006
 - Final Draft: Jan 1, 2006

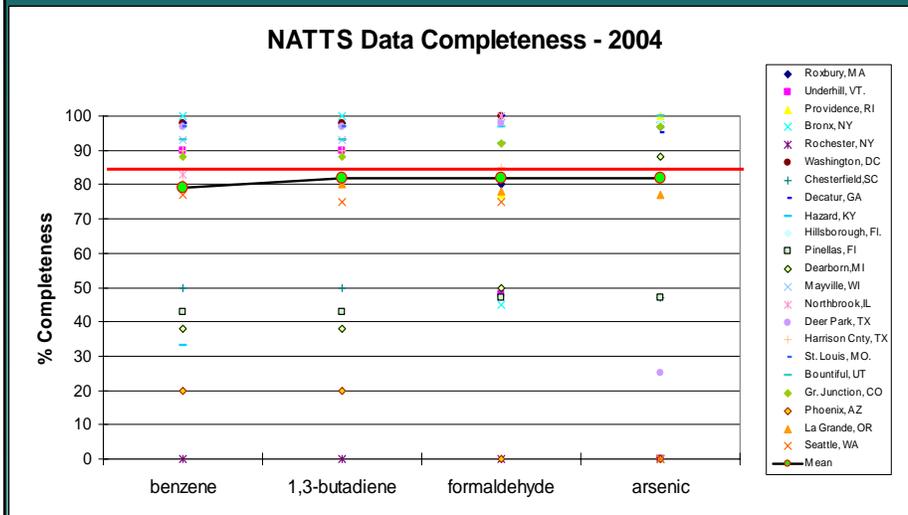
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NATTS Discoveries- D. Mikel

- ◆ Field sampler flow audits: flow rate differences were generally below 15%
- ◆ PT Information
 - Formaldehyde, Benzene and 1,3 BD bias are within tolerance of 25%. Arsenic is not
 - PT participation for VOCs and Aldehydes is excellent. Metals PT participation needs improvement
- ◆ The TO-11A method does not give us good recovery for Acrolein

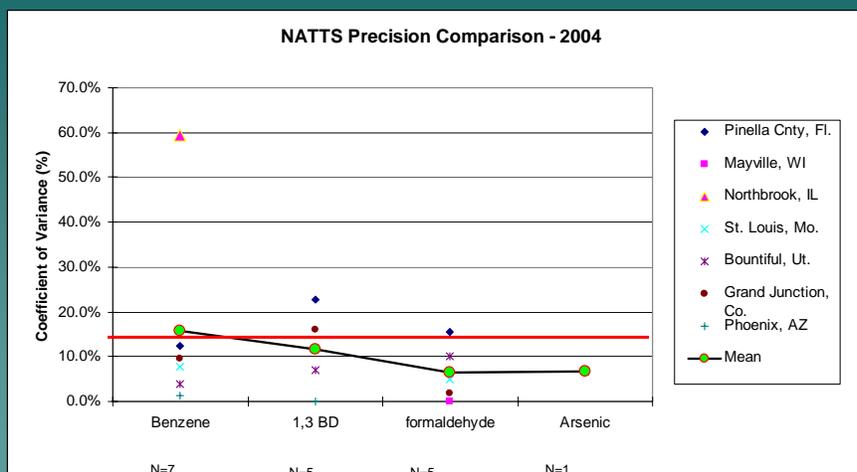
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NATTS Completeness – All Quarters 2004



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NATTS Precision Results Comparison No real requirement for participation



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NATTS Discoveries

- ◆ Data completeness for the 4 DOQ compounds are not meeting the 85% completeness criterion. This area needs improvement.
- ◆ Benzene is not meeting our precision goal of less than 15% CV, but it's due to one site. 1,3 BD, Formaldehydes and Arsenic are.
 - There is only one site submitting collocated Arsenic data.
 - Precision is hit or miss. We may need a more definitive requirement
- ◆ Detectability varies amongst the laboratories
 - The detectability for the 4 DOQ compounds does not meet the MDLs stated in the DOQs. Nor does it meet the 1 in 10⁶ Cancer Risk Based Concentrations

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NATTS Quality Improvement and Next Steps

- ◆ What we have done so far:
 - Acrolein Method via TO-15 phase in 2006
 - Recommending labs go to SIMS mode for VOCs
 - ◆ This will lower MDLs significantly.
 - Decrease in Aldehyde PTs to semi-annual samples – Save \$\$
 - Hexavalent Chromium Method is being evaluated in 2006
- ◆ Expansion of the PT program
 - Requests from EPA Regional lab and Non-NATTS labs
 - Currently, Work Assignments are in place to accommodate all AT labs that wish to participate – Available 2006!
 - Contact the Regions for costs to participate
- ◆ Flagging document-
 - Should be completed by end of May
 - May want to expand its use to other pollutants (Nat. Monitoring Meeting Topic)

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PM_{2.5} Speciation Network D. Crumpler/J. Lantz

- ◆ Conducted field audit training this week
 - Next potential training?
- ◆ STN conversion of carbon to IMPROVE technique
 - Anticipating switchover of STN around Jan, 07
 - Phasing in remainder over the next few years
 - Contractor will install and train. You'll be contacted
 - No new QA requirements- flow devices may be an issue
 - ◆ Need to operate at 23 LPM (Delta-Cal issue)
 - ◆ Instrument manufacturer will provide a certified magnahelic
 - Once installed, the sample canister receipt/shipping will continue to go through RTI, end up at DRI for analysis and back to RTI for data upload
- ◆ Reduced collocation frequency from 1-in-3 to 1-in-6
- ◆ STN Generic QAPP will be modified to include modifications over the last 6 years.
 - Dennis Crumpler has a Workgroup looking at QAPP
- ◆ STN puts out a newsletter (Joann Rice)
<http://www.epa.gov/ttn/amtic/spenews.html>

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Precursor Gas Work

- ◆ Expecting ~35 sites operating by end of 06
- ◆ 5 training sessions (~90 people) complete
 - Another session May 16,17. Some openings left (weinstock.lewis @epa.gov)
 - Next one – National Monitoring Meeting in November
- ◆ TAD Developed- will incorporate pertinent information into Redbook (Vol II)
- ◆ DQOs progressing (Sept)
- ◆ Validation Template draft developed (attached)
 - Not complete but close, needs review

We'll talk more about Precursor Gas later

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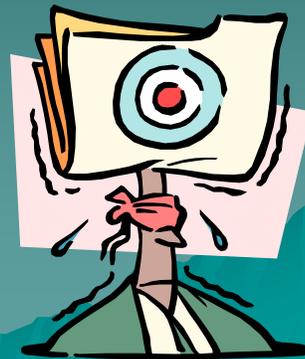
Miscellaneous

- ◆ PEP Labs reduced to 1 and automated
 - Committed this year to getting results out more quickly
 - Regions can work with SLTs on one-on-one basis
- ◆ NPAP TTP Program
 - Program on track- are seeing exceedences and taking corrective action
 - Portable TTP Development - Thanks Avi Teitz
- ◆ AOS Issues - Thanks Jonathan Miller
 - Flow rate unit codes
 - Actual vs. indicated
 - Collocated data- primary monitor designations
- ◆ QA EYE Newsletter-
 - 1st issue out in September, 2nd in January, 3rd in a few weeks
<http://www.epa.gov/ttn/amtic/qanews.html>
 - Feedback?
- ◆ National Monitoring Meeting, Nov 6-8, Las Vegas (Riveria)
 - Richard Heffern, Anna Kelley, Donovan Rafferty, Terry Rowles participating in agenda development

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Issues



Issue 1- QA Regs, So Far

- ◆ Reviewed comments from:
 - STAPPA/ALAPCO, NESCAUM, Puget Sound, Maine
 - **Positive Responses**
 - ◆ Combination of A & B
 - ◆ DQOs
 - ◆ Key elements of EPA Order- QMPs and QAPPA
 - ◆ QA Management Function
 - ◆ Collocation, PEP, flow rate audit reductions & removing alternate method
 - ◆ P & A Statistics
 - ◆ Endorse expanded concentration ranges
 - **Not so positive**
 - ◆ NPAP/PEP
 - 1.9 million for QA too much- wasteful and redundant spending
 - No evidence of inadequate SLT programs, why national programs
 - No embracement of QA proposal by SLTs
 - QA Workgroup based primarily on “refining excellence and do not consider the quality of the QA programs currently implemented by SLTs”
 - Finding out SLTs may not have capabilities for PEP/NPAP
 - EPA should be prepared to use its own funds
 - Use P & A to pinpoint problems and only audit there.
 - Need a whistleblower for misuse of federal funds
- ◆ Discomfort with revised “QA Management Function” language
- ◆ Comments still being placed in the docket. All comments available for response by June, 1

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Issue 2 FRM vs. Continuous PM_{2.5} and PM_{10-2.5}

- ◆ Attaining Class III Equivalence
 - Used DQOs to guide reference and equivalency process
 - Acceptance requirements for precision, correlation, multiplicative (slope) and additive (intercept) bias
- ◆ Approved Regional Method (ARM)
 - Must meet Class III equivalence at identified network boundaries

See Attachments

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Issue 3 Status of Redbook Revisions

- ◆ 5 Sections fairly complete, 2 others revised some– Thanks Anna
- ◆ Nothing has happened for ~ a year
- ◆ Game plan is to finish in December and include Precursor & PM_{10-2.5}
- ◆ Issues
 - How to get this done
 - ◆ The Mikel approach ?
 - ◆ Monthly section approach?
 - ◆ Are we rushing it?
 - Unknowns - Precursor Gas and PM_{10-2.5}
 - ◆ What are the major sections that need attention?

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Sections

- | | |
|---------------------------------------|--|
| ◆ Intro | 10. Quality Control |
| 1. Program Org | 11. Instrument/Equipment Testing |
| 2. Program Background | 12. Instrument Cals |
| 3. DQOs | 13. Inspection/Acceptance for supplies & Consumables |
| 4. Personnel Qualifications | 14. Data Acquisition |
| 5. Documentation & Records | 15. Assessment and Corrective Actions |
| 6. Sample Process Design | 16. Reports to Management |
| 7. Sampling methods | 17. Data Review, Verification and Validation |
| 8. Sample Handling and Custody | 18. Reconciliation with DQOs |
| 9. Analytical Methods | |
- Done**
Somewhat done

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Issue 4 QA Requirements for Precursor Gas Analyzers

- ◆ Lab and Field Testing in RTP (see attachments)
 - Field test ongoing
 - Using this data for DQO work
 - Performed MDL test
- ◆ Issues (some from trainees)
 - Need for more sites in the field to test DQO assumptions
 - Data manipulation training needed
 - Will TTP work?
 - Where is the time to implement these sites coming from?
 - Reporting to AQS, different parameter or method code or a different monitor type?
 - New cylinders needed- who pays?
 - Should MDLs be required?
 - Auto-cals strongly suggested. What other QC devices should be strongly suggested?
 - What do you think about the validation templates?

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Issue 5 What Are the Most Important Things to get Accomplished This Year?

- ◆ Background
 - We have less people than last year
 - We have reduced training resources
- ◆ What must we do
 - Respond to comments, revise CFR by Sept 27th
 - Keep programs running- PEP/NPAP, SRP, STN, NATTS etc.
 - NPAP Implementation Plan
 - 3-Year PM2.5 QA Report- (August Draft)

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What's on the table

- ◆ Redbooks
 - Volume II and IV
- ◆ Model QAPPs
 - Precursor
 - PM10-2.5
 - Turbo- QAPP
- ◆ Guidance?
 - P & A document with examples and spreadsheet
 - Graded Approach
 - **What else?**
- ◆ Training?
 - Air Quality/Met auditors
 - Training center
 - QA Manager cert
 - **What else?**
- ◆ New Types of data quality assessments?
- ◆ Fixes in AQS?
- ◆ Priority List Issues

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Issue #6

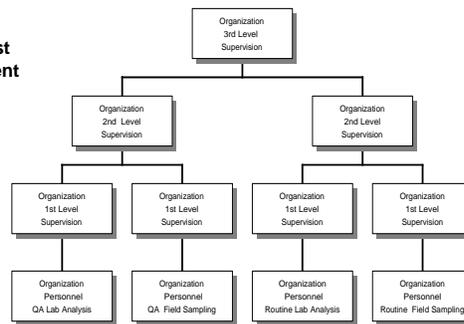
Independence Definition for NPAP and PEP

- ◆ Why- Objectivity and removes the perception of influence on results
- ◆ Maybe there is a larger issue here
 - How many SLT programs have a QA program that is independent?
 - Current Proposal-You're not independent if:
 - ◆ Your boss is also in charge of monitoring
 - ◆ Your boss is not in charge of monitoring but your boss and the monitoring boss are bossed by the same person
- ◆ It was accepted for PEP
 - Being met by IL

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Independent assessment - an assessment performed by a qualified individual, group, or organization that is not part of the organization directly performing and accountable for the work being assessed. This auditing organization must not be involved with the generation of the routine ambient air monitoring data. An organization can conduct the NPAP if it can meet the above definition and has a management structure that, at a minimum, will allow for the separation of its routine sampling personnel from its auditing personnel by two levels of management, as illustrated in the figure below.

For PEP, labs must also be independent



Organizations planning to implement the NPAP must submit a plan demonstrating independence to the EPA Regional Office responsible for overseeing quality assurance related activities for the ambient air monitoring network.

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Issue #7 Improved QA Communications with STAPPA/ALAPCO

- ◆ What's the Issue ?
 - Does the SLT QA Community have a voice at the big table?
 - Should the QA Strategy Workgroup be the voice for QA in the SLT community?
 - ◆ If so how do we communicate, come to consensus, provide leadership, influence, in order to maintain an adequate quality system?
 - ◆ If so, do we need a different structure...more formal?
 - Do we need a Steering Committee member on QA Strategy Workgroup?
 - Do we need QA representation on the Steering Committee?

How do we ensure that QA is an integral part of monitoring, that every activity serves a purpose, is justified and not redundant and QA resources remain proportional to monitoring costs

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Issue # 8 Nation-wide Validation/MQOs for Continuous PM

- ◆ Start with CFR- Assume FEM or ARM
 - Flow
 - ◆ Monthly Verification
 - ◆ Audits- every 6 months.
 - Precision
 - ◆ Collocation at 15%
 - ◆ How should this work with multiple methods and small organizations?
 - Bias
 - ◆ PEP – at the "18/27" requirement
 - ◆ How should this work with multiple methods and small organizations?
- ◆ What other criteria should be developed?

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Remaining Issues

9. QA auditor Training/verification/certification
10. Cross Training of QA auditors between states/regions
11. National Training Center for cert/training of ambient air quality met auditors
12. AQS Nomenclature
13. NATTS Flagging list review
14. Flow audit device inconsistencies
15. Training/cert of contractors/consultants for ambient air and met
16. STN and new IMPROVE Module installation

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Plans for Improvements & Wrap-up

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**Precursor Gas Methods Team
Field Test Results - DRAFT
April 2006**

Make/Model	API 300-EU CO	Thermo 48C-TLE CO	Thermo 43C-TLE SO₂	Thermo 42C-Y(NO_y)	API 200EU/501 NO_y
Averaging Time	30 seconds	30 seconds	60 seconds	120 seconds	120 seconds
Conc. Range	0-5000 ppb	0-5000 ppb	0-100 ppb	0-100 ppb	0-100 ppb
Initial Calibration Performed?	Yes	Yes	Yes	Yes	Yes
LDL	40 ppb	40 ppb	0.100 ppb	0.050 ppb	0.050 ppb
Observed	37 ppb	40 ppb	0.112 ppb	0.050 ppb	0.050 ppb
Noise	20 ppb RMS* - 30 sec	20 ppb RMS - 60 sec	0.050 ppb RMS - 60 sec	0.025 ppb - 120 sec	0.025 ppb - 120 sec
Observed	14.7 ppb	3.0 ppb	0.029 ppb	0.013 ppb	0.009 ppb
Linearity	1% FS m, b and r2 reported	1% FS m, b and r2 reported	1% FS m, b and r2 reported	1% FS m, b and r2 reported	1% FS m, b and r2 reported
Observed	1.0143x+16.075 r² = 0.9995	1.0058x-40.881 r² = 0.9997	1.0163x - 0.454 r² = 0.9995	1.0003x - 0.0753 r² = 0.9999	1.0088x - 0.0418 r² = 0.9999
MDL Observed	17.743 ppb (12.132 - 47.670 ppb CL)	16.951 ppb (11.591 - 45.541 ppb CL)	0.055 ppb (0.038 - 0.148 ppb CL)	0.050 ppb (0.03 - 0.13 ppb CL)	0.058 ppb (0.04 - 0.11 ppb CL)
Zero Drift	100 ppb/day	100 ppb/day	<0.2 ppb/day	Negligible	<0.1 ppb/day
Observed	12 hr. 62 ppb 24 hr. 67 ppb	12 hr. 74 ppb 24 hr. 84 ppb	12-hr 0.199 ppb 24-hr 0.200 ppb	12-hr 0.12 ppb 24-hr 0.12 ppb	12-hr 0.03 ppb 24 hr 0.05 ppb
Span Drift	1% FS/day	2 % FS/day	1%/week	± 1% FS	<0.5% FS
Observed	20% FS- 2.1% 80% FS - 1.7%	20% FS - 2.5% 80% FS - 2.1%	20% FS - 0.06% 80% FS - 0.27%	20% FS - 0.3% 80% FS - 0.6%	20% FS - 0.5% 80% FS - 1.2%
Precision	0.5% FS (25 ppb)	1% FS (50 ppb)	1% of reading or 0.2 ppb	NA	0.5%
Observed	8.6%	8.05%	0.91%	1.49%	2.67%
Bias Observed	+/-8.03%	-11.35%	+1.08%	+/-1.19%	+/-2.73

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*RMS: Root Mean Square

MQO TABLE FOR PRECURSOR GAS				
Critical				
M	Criteria	Acceptable Range	Minimum Frequency	Reference
Precision				
<u>Single analyzer</u>				
NO _y	?	Percent difference -10%	daily	40 CFR Part 58 Appendix A Section 3.2.1
SO ₂	5-20 ppb	Percent difference -10%	daily	40 CFR Part 58 Appendix A Section 3.2.1
CO	250-500 ppb	Percent difference -15%	daily	40 CFR Part 58 Appendix A Section 3.2.1
Zero/span check -level 1				
SO ₂		Zero drift: 0.200 ppb Span drift: 10 %	daily	Criteria Pollutant MQO Table uses % full scale
NO _y		Zero drift: 0.5 ppb Span drift: 10 %	daily	NO/NO _y daily NO ₂ titration every 2 weeks
CO		Zero drift: 200 ppb Span drift: 15%	daily	
MQO TABLE FOR PRECURSOR GAS				
Operational				
M	Criteria	Acceptable Range	Minimum Frequency	Reference
Shelter Temperature				
All 3		20 to 30 ° C. (Hourly aver) or Instrument must be operated per manufacturers specifications	Daily (hourly values)	40 CFR Part 53.20
Temperature Control				
All 3		≤ ± 3° C over 24 hours	Daily (hourly values)	Digital temperature recording required
Precision/Bias				
<u>Site Level</u>				
All 3		95% CI < ? % established per DQO Absolute Bias estimate ? % established per DQO	Calculated quarterly	
<u>Independent Audit</u>				
<u>Single analyzer</u>				
All 3	Mean of all conc. levels	Mean absolute difference ≤ 10%	Annually	
<u>Federal Audits (NPAP)</u>				
All 3	Mean of all conc. levels	Mean absolute difference ≤ 10%	1/year at selected sites	

MQO TABLE FOR PRECURSOR GAS

Operational

M	Criteria	Acceptable Range	Minimum Frequency	Reference
Calibration (GPT Capable)				
NO _y	Multipoint calibration (at least 4 points including zero)	Gas Phase Titration: Instrument residence time ≤ 2 min Dynam. parameter ≥ 2.75 ppm-min Slope ? Intercept ? R ² ?	≥ 1/6 months., after failure of QC check or after maintenance	
SO ₂	Multipoint calibration (at least 4 points including zero)	Slope ? Intercept ? R ² = 0.995	Upon receipt, adjustment, or 1/ 6 months	
CO	Multipoint calibration (at least 4 points including zero)	Slope ? Intercept ? R ² = .995	Upon receipt, adjustment, or 1/ 6 months	
Converter Efficiency				
NO _y		≥ 96 %	During multipoint calibrations, & every 2 weeks	
Zero Air				
NO _y		< 0.5 ppb NO _x	Annual zero air purity check	
SO ₂		<0.5 ppb	Annual zero air purity check	
CO		<10 ppb	Annual zero air purity check	
Gaseous Standards				
NO	NIST Traceable 10-13 ppb NO ₂ < 0.1% NO	<± 1%	Per manufacturers requirement	
SO ₂	NIST Traceable 10-13 ppb	< ± 1 %		
CO	NIST Traceable 200-300 ppm	< ± 1%		
Zero Air Check				
All 3		% difference or < x ppb	?	
Gas Dilution Systems (Mass Flow Controller)				

MQO TABLE FOR PRECURSOR GAS				
Operational				
M	Criteria	Acceptable Range	Minimum Frequency	Reference
All 3	0-20 liter/min for air flow 0-100cc/min gas flow Accuracy ± 1 %	Slope ? Intercept ? R ² ?	1/6 months	
Detection				
Noise				
NO _y		0.025 ppb	1/year	
SO ₂		0.050 ppb RMS*	1/year	
CO		20 ppb RMS	1/year	
Lower detectable level				
NO _y		0.050 ppb	1/year	
SO ₂		0.100 ppb	1/year	
CO		40 ppb	1/year	
Method Detection Limit				
NO _y		0.060 ppb	1/year	
SO ₂		0.055 ppb	1/year	
CO		18 ppb	1/year	
MQO TABLE FOR PRECURSOR GAS				
Systematic				
M	Criteria	Acceptable Range	Minimum Frequency	Reference
Standard Reporting Units		ppb (final units in AQS)	All data	
Data reported (AQS)		Hourly		
Data Stored (local)/Averaging Interval		5 min values		
Completeness				
All 3	Annually	90% of daily values		
	Daily	75% of hourly values		
	Hourly	75% of hour		
Sample Path Residence Times				
CO & SO ₂		Less than 20 seconds	continually	40 CFR Part 58 Appendix E

NO _y		< 2 seconds	continually	
Sample Probe				
Material				
All 3		Borosilicate Glass, FEP & PTFE (Teflon)	continually	40 CFR Part 58 Appendix E
NO _y		PFA		
Siting				
CO & SO ₂		Per 40 CFR Part 58 Appendices D&E	continually	40 CFR Part 58 Appendix D & E
NO _y		Inlet 10 meters above ground		
Equipment				
All 3		Reference or Equivalent Method**		

* RMS= root mean square

** If used for NAAQS determinations

Assessment of Monitoring Organization Burden Related to Changes in PM10, PM 2.5 and TSP Quality Control Requirements in Proposed QA Regulations 40 CFR 58 Appendix A

On a number of recent conference calls that have been scheduled to explain, clarify or take comment on the January 17, 2006 proposed monitoring regulations there has been some confusion on the added burden of the quality control regulations specifically for PM10, PM2.5 and TSP.

In order to provide a level of clarity on the proposed particulate matter quality assurance requirements, Table 1, which is similar to Table A-2 in 40 CFR Part 58 Appendix A, is used to compare the current requirements in this appendix to the proposed requirements for each particulate matter quality control criteria. In addition, an error was found in the proposed regulation related to the 6 day sampling frequency of collocation for the manual TSP method. The acronym TSP should actually have been PSD and therefore there is no collocated frequency for TSP of every 6 days. The TSP collocation frequency is every 12 days which is consistent with the other manual particulate methods.

The third and fourth columns of Table 1 provides a comparison of the current (column 3) and proposed (column 4) requirement. Column 5 provides the net effect of the proposed rule as either a decrease (blue font), or an increase (red font) in burden from the current rule.

In order to gain a better perspective on the overall effect of the proposed regulation, 2004 PM10, PM2.5 and TSP continuous and manual data was extracted from AQS for SLAMS/NAMS/PAMS sites by reporting organization. Table 1 in the attachment provides a listing of reporting organizations aggregated into 5 categories: PM10 Continuous, PM10 Manual, PM2.5 Continuous, PM2.5 Manual and TSP Manual (monitors for Pb) and quantifies burden increases or decreases by reporting organization. Table 2 below provides the totals.

Table 2. Overall burden increase or decrease from proposed regulations.

Pollutant	Method	# Sites	Flow Verification Decrease /Increase	Flow Audit Decrease /Increase	Collocated Sampling Decrease /Increase	PEP Decrease /Increase
PM10	Continuous	123	-1722	123	NA	NA
PM10	Manual	642	7704	642	-4080	NA
PM2.5	Continuous	180	-2520	-360	-1680	0
PM2.5	Manual	937	NC	-1874	-5220	-314
TSP/Pb	Manual	100	1200	100	-1050	NA
Total	(w/o 2.5 continuous)	1802	7182	-1009	-10410	-314
Total	(with 2.5 continuous)	1982	4662	-1369	-12090	-314

* QC check not performed

** No change in current and proposed regulation.

Data with a negative number (blue highlight) represents a decrease in burden; a positive value (pink highlight) represents an increase. Two totals are provided, with and without PM2.5 continuous instruments. Since the PM2.5 continuous methods are not currently designated as federally equivalent methods (FEM), they are not presently required to follow 40 CFR Part 58 requirements. However, reporting organizations may be implementing these requirements.

As is illustrated, the decrease in burden outweighs the increase. The greatest increase in burden is in PM10 flow rate verification where we expect the numbers of sites to decrease in the future. The greatest decrease in burden is in collocated sampling which is a much more resource intensive (field and laboratory) activity and provides a larger offset in burden reduction than the numbers might otherwise indicate.

Table 1. Representation of Table A-2 of Appendix A to Part 58. Minimum PM Data Assessment Requirements for SLAMS Sites

Method	Coverage	Minimum Frequency Current Rule	Minimum Frequency Proposed Rule	Net Effect
Continuous Methods				
Flow rate verification PM _{2.5} , PM _{10-2.5} , PM ₁₀ ,	Each sampler	Once every 2 weeks	Once every month	Decrease 12/unit
Flow rate audit PM _{2.5} , PM _{10-2.5}	Each sampler	Once every Quarter	Once every 6 months	Decrease by 2 per unit
PM ₁₀ , TSP	Each Sampler	Once every year	Once every 6 months	Increase by 1 per unit
Collocated Sampling PM _{2.5} , PM _{10-2.5}	15%	Every 6 days	Every twelve days	Decrease by 30 per collocated unit
Performance Evaluation PM _{2.5} , PM _{10-2.5}	See rule	25% of method designations 4 times per year	1. 5 valid audits for primary QA orgs, with ≤ 5 sites 2. 8 valid audits for primary QA orgs, with > 5 sites	Decrease in overall national audits by ~25%
Manual Instruments				
Collocated Sampling PM _{10-2.5} , PM _{2.5} PM ₁₀ , TSP,	15%	Every 6 days	Every 12 days	Decrease by 30 per collocated unit
Flow rate verification PM _{10-2.5} , PM _{2.5}	Each sampler	Once every month	Once every month	No Change
PM ₁₀ , TSP		No verification	Once every month	Increase of 12 per unit
Flow rate audit PM _{10-2.5} , PM _{2.5}	Each sampler	Once every Quarter	Once every 6 months	Decrease by 2 per unit
PM ₁₀ , TSP	Each sampler	Once every year	Once every 6 months	Increase by 1 per unit
Performance Evaluation PM _{2.5} , PM _{10-2.5}	See rule	25% of method designations 4 times per year	1. 5 valid audits for primary QA orgs, with ≤ 5 sites 2. 8 valid audits for primary QA orgs, with > 5 sites	Decrease in overall national audits by ~25%

Attachment

Table 1

Reporting Organization Burden Increase or Decrease based on the Proposed Monitoring QA Regulations for PM10, PM2.5 and TSP in 40CFR Part58 Appendix A.

The following table determines the increase or decrease in burden based on the proposed monitoring QA Regulations for four quality control checks:

1. Flow Rate Verifications (Identified as “Flow V”) in columns 7-9.
2. Flow Rate Audits (Identified as “Flow Audits”) in columns 10-12
3. Collocated Sampling in columns 13-16
4. Performance Evaluation Program (identified as “PEP”) in columns 17-19

The data is aggregated at the reporting organization level since some of the frequency requirements are based on reporting organization while others are based on individual samplers at the site. The data is also aggregated by 5 pollutants:

1. PM10 Continuous
2. PM10 Manual
3. PM2.5 Continuous
4. PM2.5 Manual
5. TSP Manual (monitors for Pb)

Columns identified as “Current” reflect the number of checks that would be required for a reporting organization under the current requirements; columns identified as “Proposed” identify the number of checks that would be required under the proposed requirements. Data in the “Decrease/Increase” column is generated by subtracting the proposed value from the current value. Therefore, a negative value in the “Decrease/Increase” column reflects a decrease in burden if one implements the proposed rule; a positive value indicates an increase in burden if the proposed requirement is implemented. The “Decrease/Increase” column is summed for each quality control check/pollutant and also summed for all pollutants.

A value of “NA” is used to identify a quality control check that is not performed and therefore not applicable for this pollutant.

A value of “NC” is used to identify where no change has occurred in the requirement and therefore, no increase or decrease in burden.

Table 1 Burden Decrease or Increase of Proposed QA Regulations on PM10, PM2.5 and TSP Monitoring

Negative values (Lt blue highlight) represent a decrease in burden from current regulation. Positive values (pink highlight) represent an increased burden from current regulation

REP_ORG	REG	State	Pollutant	Method	# Sites	Flow V Current	Flow V Proposed	Decrease /Increase	Flow Audit Curr	Flow Audit Proposed	Decrease /Increase	Collocated sites	Collocated Freq Current	Collocated Freq Proposed	Decrease /Increase	PEP Audits Current	PEP Audits Proposed	Decrease /Increase
PM10 Continuous Method																		
Jefferson County,	04	AL	PM10	Continuous	4	104	48	-56	4	8	4	NA	NA	NA	NA	NA	NA	NA
Pima County Heal	09	AZ	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Maricopa County	09	AZ	PM10	Continuous	5	130	60	-70	5	10	5	NA	NA	NA	NA	NA	NA	NA
Mojave Desert AC	09	CA	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Antelope Valley A	09	CA	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Northern Sierra Al	09	CA	PM10	Continuous	4	104	48	-56	4	8	4	NA	NA	NA	NA	NA	NA	NA
California Air Res	09	CA	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Colorado Departm	08	CO	PM10	Continuous	5	130	60	-70	5	10	5	NA	NA	NA	NA	NA	NA	NA
Delaware Dept Ne	03	DE	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Sarasota County I	04	FL	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Broward County E	04	FL	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Hillsborough Cour	04	FL	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Florida Dept of En	04	FL	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Florida Dept of En	04	FL	PM10	Continuous	3	78	36	-42	3	6	3	NA	NA	NA	NA	NA	NA	NA
Florida Dept of En	04	FL	PM10	Continuous	4	104	48	-56	4	8	4	NA	NA	NA	NA	NA	NA	NA
Florida Dept of En	04	FL	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Florida Dept of En	04	FL	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Florida Dept of En	04	FL	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Polk County Phys	07	IA	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
University Hygieni	07	IA	PM10	Continuous	4	104	48	-56	4	8	4	NA	NA	NA	NA	NA	NA	NA
Idaho Department	10	ID	PM10	Continuous	5	130	60	-70	5	10	5	NA	NA	NA	NA	NA	NA	NA
Indiana Depart Of	05	IN	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Kansas Departme	07	KS	PM10	Continuous	3	78	36	-42	3	6	3	NA	NA	NA	NA	NA	NA	NA
State Of Maryland	03	MD	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Maine D.E.P. Bur	01	ME	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Wayne County Air	05	MI	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Minnesota Polluti	05	MN	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
St Louis City Divi	07	MO	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Mt Dept Of Enviro	08	MT	PM10	Continuous	6	156	72	-84	6	12	6	NA	NA	NA	NA	NA	NA	NA
Forsyth County Er	04	NC	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
North Dakota Stat	08	ND	PM10	Continuous	5	130	60	-70	5	10	5	NA	NA	NA	NA	NA	NA	NA
Nebraska Depart	07	NE	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
New Mexico Envir	06	NM	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Albuquerque Envi	06	NM	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Nevada Division C	09	NV	PM10	Continuous	3	78	36	-42	3	6	3	NA	NA	NA	NA	NA	NA	NA
Cleveland Air Poll	05	OH	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
City of Toledo, En	05	OH	PM10	Continuous	2	52	24	-28	2	4	2	NA	NA	NA	NA	NA	NA	NA
Oklahoma Dept. C	06	OK	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Pennsylvania Dep	03	PA	PM10	Continuous	18	468	216	-252	18	36	18	NA	NA	NA	NA	NA	NA	NA
Allegheny Co Hea	03	PA	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
Puerto Rico Envir	02	PR	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
South Carolina De	04	SC	PM10	Continuous	5	130	60	-70	5	10	5	NA	NA	NA	NA	NA	NA	NA
South Dakota Dep	08	SD	PM10	Continuous	4	104	48	-56	4	8	4	NA	NA	NA	NA	NA	NA	NA
Washington State	10	WA	PM10	Continuous	3	78	36	-42	3	6	3	NA	NA	NA	NA	NA	NA	NA
Wisconsin Dept O	05	WI	PM10	Continuous	1	26	12	-14	1	2	1	NA	NA	NA	NA	NA	NA	NA
West Virginia Nor	03	WV	PM10	Continuous	3	78	36	-42	3	6	3	NA	NA	NA	NA	NA	NA	NA
Total					123			-1722			123							
PM10 Manual																		
Alaska Departm	10	AK	PM10	Manual	2	0	24	24	2	4	2	1	60	30	-30	NA	NA	NA
Jefferson County,	04	AL	PM10	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA

City of Huntsville,	04	AL	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Arkansas Departm	06	AR	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Pima County Heal	09	AZ	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
Maricopa County	09	AZ	PM10	Manual	11	0	132	132	11	22	11	2.00	120	60	-60	NA	NA	NA
Arizona Departme	09	AZ	PM10	Manual	15	0	180	180	15	30	15	2.00	120	60	-60	NA	NA	NA
Salt River Pima-M	09	AZ	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Mojave Desert AC	09	CA	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Ventura County A	09	CA	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Antelope Valley A	09	CA	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Siskiyou County A	09	CA	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Great Basin Unifie	09	CA	PM10	Manual	22	0	264	264	22	44	22	3.00	180	90	-90	NA	NA	NA
Monterey Bay Uni	09	CA	PM10	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA
Santa Barbara Co	09	CA	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
San Luis Obispo C	09	CA	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
California Air Res	09	CA	PM10	Manual	53	0	636	636	53	106	53	8.00	480	240	-240	NA	NA	NA
Bay Area Air Qual	09	CA	PM10	Manual	14	0	168	168	14	28	14	2.00	120	60	-60	NA	NA	NA
South Coast Air Q	09	CA	PM10	Manual	16	0	192	192	16	32	16	2.00	120	60	-60	NA	NA	NA
San Diego County	09	CA	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Colorado Departm	08	CO	PM10	Manual	36	0	432	432	36	72	36	5.00	300	150	-150	NA	NA	NA
Connecticut Depa	01	CT	PM10	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA
DC Dept. Of Heal	03	DC	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Palm Beach Coun	04	FL	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Sarasota County I	04	FL	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Orange County Er	04	FL	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Broward County E	04	FL	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
City of Jacksonvill	04	FL	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Manatee County E	04	FL	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Pinellas County D	04	FL	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Hillsborough Cour	04	FL	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Florida Dept of En	04	FL	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Miami-Dade Coun	04	FL	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Georgia Air Protec	04	GA	PM10	Manual	13	0	156	156	13	26	13	2.00	120	60	-60	NA	NA	NA
Hawaii State Dep	09	HI	PM10	Manual	9	0	108	108	9	18	9	1.00	60	30	-30	NA	NA	NA
Linn County Health	07	IA	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Polk County Phys	07	IA	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
University Hygieni	07	IA	PM10	Manual	11	0	132	132	11	22	11	2.00	120	60	-60	NA	NA	NA
Idaho Department	10	ID	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Illinois Environme	05	IL	PM10	Manual	11	0	132	132	11	22	11	2.00	120	60	-60	NA	NA	NA
Cook County Dep	05	IL	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Anderson Air Poll	05	IN	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Evansville Divisio	05	IN	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Vigo County Divis	05	IN	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Indianapolis Divisi	05	IN	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
Indiana Depart Of	05	IN	PM10	Manual	14	0	168	168	14	28	14	2.00	120	60	-60	NA	NA	NA
Kansas Departme	07	KS	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Kentucky Division	04	KY	PM10	Manual	12	0	144	144	12	24	12	2.00	120	60	-60	NA	NA	NA
State Of Louisian	06	LA	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Mass Dept Enviro	01	MA	PM10	Manual	10	0	120	120	10	20	10	2.00	120	60	-60	NA	NA	NA
State Of Maryland	03	MD	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Maine D.E.P. Bur	01	ME	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Michigan Dept Of	05	MI	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Minnesota Pollutic	05	MN	PM10	Manual	9	0	108	108	9	18	9	1.00	60	30	-30	NA	NA	NA
Missouri Laborato	07	MO	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
St Louis City Divis	07	MO	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Springfield-Green	07	MO	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Mt Dept Of Enviro	08	MT	PM10	Manual	9	0	108	108	9	18	9	1.00	60	30	-30	NA	NA	NA
Mecklenburg Cou	04	NC	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
North Carolina De	04	NC	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA

North Dakota Stat	08	ND	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Omaha-Douglas C	07	NE	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Nebraska Departm	07	NE	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
New Hampshire A	01	NH	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
New Jersey State	02	NJ	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
New Mexico Envir	06	NM	PM10	Manual	11	0	132	132	11	22	11	2.00	120	60	-60	NA	NA	NA
Albuquerque Envi	06	NM	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Clark County, NV	09	NV	PM10	Manual	17	0	204	204	17	34	17	3.00	180	90	-90	NA	NA	NA
Washoe County C	09	NV	PM10	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA
New York State D	02	NY	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Ohio EPA, Centra	05	OH	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Ohio EPA, Northe	05	OH	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Ohio EPA, Southe	05	OH	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Cleveland Air Poll	05	OH	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
Dayton Regional /	05	OH	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Mahoning-Trumb	05	OH	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Hamilton County I	05	OH	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Portsmouth City F	05	OH	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
Lake County Heal	05	OH	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Oklahoma Dept. C	06	OK	PM10	Manual	8	0	96	96	8	16	8	1.00	60	30	-30	NA	NA	NA
Lane Regional Air	10	OR	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Oregon Departme	10	OR	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
Philadelphia Air M	03	PA	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Pennsylvania Dep	03	PA	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Allegheny Co Hea	03	PA	PM10	Manual	8	0	96	96	8	16	8	1.00	60	30	-30	NA	NA	NA
Puerto Rico Envir	02	PR	PM10	Manual	16	0	192	192	16	32	16	2.00	120	60	-60	NA	NA	NA
Rhode Island DEN	01	RI	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
South Carolina De	04	SC	PM10	Manual	9	0	108	108	9	18	9	1.00	60	30	-30	NA	NA	NA
South Dakota Dep	08	SD	PM10	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA
Memphis-Shelby C	04	TN	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Knox County Dep	04	TN	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Chattanooga-Harr	04	TN	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Metropolitan Heal	04	TN	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
City of Houston H	06	TX	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
El Paso City-Cour	06	TX	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Galveston City-Cc	06	TX	PM10	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Texas Commissio	06	TX	PM10	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
City of Dallas Air f	06	TX	PM10	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
Utah Department	08	UT	PM10	Manual	8	0	96	96	8	16	8	1.00	60	30	-30	NA	NA	NA
Fairfax County Air	03	VA	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Virginia State Air I	03	VA	PM10	Manual	10	0	120	120	10	20	10	2.00	120	60	-60	NA	NA	NA
Virgin Islands Dep	02	VI	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Vermont Agency C	01	VT	PM10	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Washington State	10	WA	PM10	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA
Wisconsin Dept O	05	WI	PM10	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
West Virginia Nor	03	WV	PM10	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Wyoming Air Qual	08	WY	PM10	Manual	10	0	120	120	10	20	10	2.00	120	60	-60	NA	NA	NA
Total					642			7704			642				-4080			

PM2.5 Continuous

Jefferson County,	04	AL	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
City of Huntsville,	04	AL	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Arkansas Departm	06	AR	PM2.5	Continuous	4	104	48	-56	16	8	-8	1.00	60	30	-30	4	5	1
Ventura County A	09	CA	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Northern Sierra Al	09	CA	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
California Air Res	09	CA	PM2.5	Continuous	6	156	72	-84	24	12	-12	1.00	60	30	-30	4	8	4
FDEP Ambient Mc	04	FL	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Hillsborough Cour	04	FL	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1

Florida Dept of En	04	FL	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Miami-Dade Coun	04	FL	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Polk County Phys	07	IA	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
University Hygeni	07	IA	PM2.5	Continuous	5	130	60	-70	20	10	-10	1.00	60	30	-30	4	5	1
Indianapolis Divisi	05	IN	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Mass Dept Enviro	01	MA	PM2.5	Continuous	10	260	120	-140	40	20	-20	2.00	120	60	-60	12	8	-4
Maine D.E.P. Bur	01	ME	PM2.5	Continuous	3	78	36	-42	12	6	-6	1.00	60	30	-30	4	5	1
Wayne County Air	05	MI	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Michigan Dept Of	05	MI	PM2.5	Continuous	12	312	144	-168	48	24	-24	2.00	120	60	-60	12	8	-4
Minnesota Pollutic	05	MN	PM2.5	Continuous	12	312	144	-168	48	24	-24	2.00	120	60	-60	12	8	-4
Missouri Laborato	07	MO	PM2.5	Continuous	3	78	36	-42	12	6	-6	1.00	60	30	-30	4	5	1
Mississippi DEQ, I	04	MS	PM2.5	Continuous	4	104	48	-56	16	8	-8	1.00	60	30	-30	4	5	1
Forsyth County Er	04	NC	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
North Carolina De	04	NC	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
North Dakota Stat	08	ND	PM2.5	Continuous	8	208	96	-112	32	16	-16	1.00	60	30	-30	8	8	0
New Hampshire A	01	NH	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
New Jersey State	02	NJ	PM2.5	Continuous	4	104	48	-56	16	8	-8	1.00	60	30	-30	4	5	1
New York State D	02	NY	PM2.5	Continuous	19	494	228	-266	76	38	-38	3.00	180	90	-90	20	8	-12
Ohio EPA, Centra	05	OH	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Ohio EPA, Northe	05	OH	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Ohio EPA, Southe	05	OH	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Akron Regional Ai	05	OH	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Dayton Regional /	05	OH	PM2.5	Continuous	5	130	60	-70	20	10	-10	1.00	60	30	-30	4	5	1
Mahoning-Trumb	05	OH	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
City of Toledo, En	05	OH	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Canton City Healt	05	OH	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Hamilton County I	05	OH	PM2.5	Continuous	3	78	36	-42	12	6	-6	1.00	60	30	-30	4	5	1
Oregon Departme	10	OR	PM2.5	Continuous	22	572	264	-308	88	44	-44	3.00	180	90	-90	24	8	-16
Pennsylvania Dep	03	PA	PM2.5	Continuous	10	260	120	-140	40	20	-20	2.00	120	60	-60	12	8	-4
Puerto Rico Envir	02	PR	PM2.5	Continuous	4	104	48	-56	16	8	-8	1.00	60	30	-30	4	5	1
South Dakota Dep	08	SD	PM2.5	Continuous	3	78	36	-42	12	6	-6	1.00	60	30	-30	4	5	1
Memphis-Shelby C	04	TN	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Texas Commissio	06	TX	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Utah Department	08	UT	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Fairfax County Air	03	VA	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Virginia State Air I	03	VA	PM2.5	Continuous	2	52	24	-28	8	4	-4	1.00	60	30	-30	4	5	1
Vermont Agency C	01	VT	PM2.5	Continuous	1	26	12	-14	4	2	-2	1.00	60	30	-30	4	5	1
Washington State	10	WA	PM2.5	Continuous	4	104	48	-56	16	8	-8	1.00	60	30	-30	4	5	1
Wisconsin Dept O	05	WI	PM2.5	Continuous	3	78	36	-42	12	6	-6	1.00	60	30	-30	4	5	1
Total					180			-2520			-360				-1680			0
PM2.5 Manual																		
Alaska Departmer	10	AK	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
Al Dept Of Env M	04	AL	PM2.5	Manual	13	NC	NC	NC	52	26	-26	2.00	120	60	-60	12	8	-4
Jefferson County,	04	AL	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
City of Huntsville,	04	AL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Arkansas Departn	06	AR	PM2.5	Manual	19	NC	NC	NC	76	38	-38	3.00	180	90	-90	20	8	-12
Pima County Heal	09	AZ	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Maricopa County	09	AZ	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Arizona Departme	09	AZ	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Salt River Pima-M	09	AZ	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Mojave Desert AC	09	CA	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Ventura County A	09	CA	PM2.5	Manual	18	NC	NC	NC	72	36	-36	3.00	180	90	-90	20	8	-12
Antelope Valley A	09	CA	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Great Basin Unife	09	CA	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
California Air Res	09	CA	PM2.5	Manual	23	NC	NC	NC	92	46	-46	3.00	180	90	-90	24	8	-16
Bay Area Air Qual	09	CA	PM2.5	Manual	16	NC	NC	NC	64	32	-32	2.00	120	60	-60	16	8	-8
South Coast Air Q	09	CA	PM2.5	Manual	20	NC	NC	NC	80	40	-40	3.00	180	90	-90	20	8	-12
San Diego County	09	CA	PM2.5	Manual	11	NC	NC	NC	44	22	-22	2.00	120	60	-60	12	8	-4

Colorado Departm	08	CO	PM2.5	Manual	13	NC	NC	NC	52	26	-26	2.00	120	60	-60	12	5	-7
Connecticut Depa	01	CT	PM2.5	Manual	10	NC	NC	NC	40	20	-20	2.00	120	60	-60	12	8	-4
DC Dept. Of Healt	03	DC	PM2.5	Manual	5	NC	NC	NC	20	10	-10	1.00	60	30	-30	4	5	1
Delaware Dept Ne	03	DE	PM2.5	Manual	8	NC	NC	NC	32	16	-16	1.00	60	30	-30	8	8	0
Ambient Air Servic	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
FDEP Ambient M	04	FL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Palm Beach Coun	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Sarasota County I	04	FL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Orange County Er	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Broward County E	04	FL	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
City of Jacksonvill	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Pinellas County D	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Hillsborough Cour	04	FL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Florida Dept of En	04	FL	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Miami-Dade Coun	04	FL	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Georgia Air Protec	04	GA	PM2.5	Manual	23	NC	NC	NC	92	46	-46	3.00	180	90	-90	24	8	-16
Hawaii State Depa	09	HI	PM2.5	Manual	5	NC	NC	NC	20	10	-10	1.00	60	30	-30	4	5	1
Linn County Healt	07	IA	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Polk County Phys	07	IA	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
University Hygeni	07	IA	PM2.5	Manual	12	NC	NC	NC	48	24	-24	2.00	120	60	-60	12	8	-4
Idaho Department	10	ID	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Illinois Environme	05	IL	PM2.5	Manual	29	NC	NC	NC	116	58	-58	4.00	240	120	-120	28	8	-20
Cook County Dep	05	IL	PM2.5	Manual	8	NC	NC	NC	32	16	-16	1.00	60	30	-30	8	8	0
Indianapolis Divisi	05	IN	PM2.5	Manual	8	NC	NC	NC	32	16	-16	1.00	60	30	-30	8	8	0
Indiana Depart Of	05	IN	PM2.5	Manual	37	NC	NC	NC	148	74	-74	6.00	360	180	-180	36	8	-28
Kansas Departme	07	KS	PM2.5	Manual	12	NC	NC	NC	48	24	-24	2.00	120	60	-60	12	8	-4
Kentucky Division	04	KY	PM2.5	Manual	16	NC	NC	NC	64	32	-32	2.00	120	60	-60	16	8	-8
Jefferson County,	04	KY	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
State Of Louisian	06	LA	PM2.5	Manual	33	NC	NC	NC	132	66	-66	5.00	300	150	-150	32	8	-24
Mass Dept Enviro	01	MA	PM2.5	Manual	17	NC	NC	NC	68	34	-34	3.00	180	90	-90	16	8	-8
State Of Maryland	03	MD	PM2.5	Manual	20	NC	NC	NC	80	40	-40	3.00	180	90	-90	20	8	-12
Maine D.E.P. Bur	01	ME	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Wayne County Air	05	MI	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Michigan Dept Of	05	MI	PM2.5	Manual	28	NC	NC	NC	112	56	-56	4.00	240	120	-120	28	8	-20
Minnesota Pollutic	05	MN	PM2.5	Manual	21	NC	NC	NC	84	42	-42	3.00	180	90	-90	20	8	-12
Missouri Laborato	07	MO	PM2.5	Manual	9	NC	NC	NC	36	18	-18	1.00	60	30	-30	8	8	0
St Louis City Divis	07	MO	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
St Louis County H	07	MO	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Springfield-Green	07	MO	PM2.5	Manual	1	NC	NC	NC	4	2	-2	1.00	60	30	-30	4	5	1
Mississippi DEQ, I	04	MS	PM2.5	Manual	17	NC	NC	NC	68	34	-34	3.00	180	90	-90	16	8	-8
Mt Dept Of Enviro	08	MT	PM2.5	Manual	14	NC	NC	NC	56	28	-28	2.00	120	60	-60	16	8	-8
Mecklenburg Cou	04	NC	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Forsyth County Er	04	NC	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
North Carolina De	04	NC	PM2.5	Manual	20	NC	NC	NC	80	40	-40	3.00	180	90	-90	20	8	-12
North Carolina We	04	NC	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
North Dakota Stat	08	ND	PM2.5	Manual	5	NC	NC	NC	20	10	-10	1.00	60	30	-30	4	8	4
Omaha-Douglas C	07	NE	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Nebraska Departm	07	NE	PM2.5	Manual	9	NC	NC	NC	36	18	-18	1.00	60	30	-30	8	8	0
New Hampshire A	01	NH	PM2.5	Manual	9	NC	NC	NC	36	18	-18	1.00	60	30	-30	8	8	0
New Jersey State	02	NJ	PM2.5	Manual	21	NC	NC	NC	84	42	-42	3.00	180	90	-90	20	8	-12
Albuquerque Envi	06	NM	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Clark County, NV	09	NV	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Washoe County C	09	NV	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1

New York State D	02	NY	PM2.5	Manual	28	NC	NC	NC	112	56	-56	4.00	240	120	-120	28	8	-20
Ohio EPA, Centra	05	OH	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
Ohio EPA, Northe	05	OH	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Ohio EPA, Southe	05	OH	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Cleveland Air Poll	05	OH	PM2.5	Manual	7	NC	NC	NC	28	14	-14	1.00	60	30	-30	8	8	0
Akron Regional Ai	05	OH	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
Dayton Regional /	05	OH	PM2.5	Manual	5	NC	NC	NC	20	10	-10	1.00	60	30	-30	4	5	1
Mahoning-Trumb	05	OH	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
City of Toledo, En	05	OH	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Canton City Health	05	OH	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Hamilton County I	05	OH	PM2.5	Manual	13	NC	NC	NC	52	26	-26	2.00	120	60	-60	12	8	-4
Portsmouth City F	05	OH	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Lake County Heal	05	OH	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Oklahoma Dept. C	06	OK	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
Oregon Departme	10	OR	PM2.5	Manual	16	NC	NC	NC	64	32	-32	2.00	120	60	-60	16	8	-8
Philadelphia Air M	03	PA	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Pennsylvania Dep	03	PA	PM2.5	Manual	23	NC	NC	NC	92	46	-46	3.00	180	90	-90	24	8	-16
Allegheny Co Hea	03	PA	PM2.5	Manual	7	NC	NC	NC	28	14	-14	1.00	60	30	-30	8	8	0
Puerto Rico Envir	02	PR	PM2.5	Manual	10	NC	NC	NC	40	20	-20	2.00	120	60	-60	12	8	-4
Rhode Island DEN	01	RI	PM2.5	Manual	5	NC	NC	NC	20	10	-10	1.00	60	30	-30	4	5	1
South Carolina De	04	SC	PM2.5	Manual	14	NC	NC	NC	56	28	-28	2.00	120	60	-60	16	8	-8
South Dakota Dep	08	SD	PM2.5	Manual	10	NC	NC	NC	40	20	-20	2.00	120	60	-60	12	8	-4
Memphis-Shelby (04	TN	PM2.5	Manual	4	NC	NC	NC	16	8	-8	1.00	60	30	-30	4	5	1
Tennessee Divisic	04	TN	PM2.5	Manual	7	NC	NC	NC	28	14	-14	1.00	60	30	-30	8	8	0
Knox County Dep	04	TN	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Chattanooga-Harr	04	TN	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Metropolitan Heal	04	TN	PM2.5	Manual	3	NC	NC	NC	12	6	-6	1.00	60	30	-30	4	5	1
Texas Commissio	06	TX	PM2.5	Manual	29	NC	NC	NC	116	58	-58	4.00	240	120	-120	28	8	-20
Utah Department	08	UT	PM2.5	Manual	8	NC	NC	NC	32	16	-16	1.00	60	30	-30	8	8	0
Virginia State Air I	03	VA	PM2.5	Manual	17	NC	NC	NC	68	34	-34	3.00	180	90	-90	16	8	-8
Virgin Islands Dep	02	VI	PM2.5	Manual	2	NC	NC	NC	8	4	-4	1.00	60	30	-30	4	5	1
Vermont Agency C	01	VT	PM2.5	Manual	5	NC	NC	NC	20	10	-10	1.00	60	30	-30	4	5	1
Washington State	10	WA	PM2.5	Manual	7	NC	NC	NC	28	14	-14	1.00	60	30	-30	8	8	0
Wisconsin Dept O	05	WI	PM2.5	Manual	16	NC	NC	NC	64	32	-32	2.00	120	60	-60	16	8	-8
West Virginia Air f	03	WV	PM2.5	Manual	7	NC	NC	NC	28	14	-14	1.00	60	30	-30	8	8	0
West Virginia Nori	03	WV	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Wyoming Air Qual	08	WY	PM2.5	Manual	6	NC	NC	NC	24	12	-12	1.00	60	30	-30	8	8	0
Total					937						-1874				-5220			-314
PB/TSP Manual																		
Al Dept Of Env M	04	AL	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
California Air Res	09	CA	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
South Coast Air Q	09	CA	PB/TSP	Manual	10	0	120	120	10	20	10	2.00	120	60	-60	NA	NA	NA
Colorado Departm	08	CO	PB/TSP	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Hillsborough Cour	04	FL	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Pinellas County D	04	FL	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Georgia Air Protec	04	GA	PB/TSP	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Cook County Dep	05	IL	PB/TSP	Manual	6	0	72	72	6	12	6	1.00	60	30	-30	NA	NA	NA
Illinois Environme	05	IL	PB/TSP	Manual	7	0	84	84	7	14	7	1.00	60	30	-30	NA	NA	NA
Indiana Depart Of	05	IN	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Indianapolis Divisi	05	IN	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Mass Dept Enviro	01	MA	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Michigan Dept Of	05	MI	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Wayne County Air	05	MI	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Minnesota Pollutic	05	MN	PB/TSP	Manual	16	0	192	192	16	32	16	2.00	120	60	-60	NA	NA	NA
Missouri Laborato	07	MO	PB/TSP	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
St Louis County H	07	MO	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Doe Run Buick	07	MO	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Doe Run Hercular	07	MO	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA

New Jersey State	02	NJ	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
New York State D	02	NY	PB/TSP	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
NY State Lead Sa	02	NY	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Cleveland Air Poll	05	OH	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Ohio EPA, Centra	05	OH	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Ohio EPA, Northe	05	OH	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Allegheny Co Hea	03	PA	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Pennsylvania Dep	03	PA	PB/TSP	Manual	5	0	60	60	5	10	5	1.00	60	30	-30	NA	NA	NA
Philadelphia Air M	03	PA	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Puerto Rico Envir	02	PR	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
South Carolina De	04	SC	PB/TSP	Manual	4	0	48	48	4	8	4	1.00	60	30	-30	NA	NA	NA
Memphis-Shelby C	04	TN	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
Tennessee Divisic	04	TN	PB/TSP	Manual	3	0	36	36	3	6	3	1.00	60	30	-30	NA	NA	NA
City of Dallas Air f	06	TX	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Texas Commissio	06	TX	PB/TSP	Manual	2	0	24	24	2	4	2	1.00	60	30	-30	NA	NA	NA
Utah Department	08	UT	PB/TSP	Manual	1	0	12	12	1	2	1	1.00	60	30	-30	NA	NA	NA
					100			1200			100				-1110			
Grand Total					1982			4662			-1369				-12090			-314

Defined Primary PM2.5 Monitors in AQS

(Sorted by Reporting Organization)

Agencies highlighted in yellow (3rd column) have not established primary monitors in AQS and therefore collocation records are not being generated

Agency Description	# NAMS/ PAMS/SLAMS PM2.5 Sites	15% (Minimum of 1)	Primary AQS PM2.5 Monitors	△
Akron Regional Air Pollution Control Agency	4	1	1	0
Al Dept Of Env Mgt	13	2	4	0
Alaska Department Of Environmental Conservation	4	1	4	0
Albuquerque Environmental Health And Energy Department	2	1	1	0
Allegheny Co Health Dept Bureau Of Air Pollution Control	5	1	3	0
Ambient Air Services, Inc.	2	1	0	1
Antelope Valley APCD	1	1	0	1
Arizona Department Of Environmental Quality	5	1	1	0
Arkansas Department Of Environmental Quality	16	2	0	2
Bay Area Air Quality Management District	15	2	2	0
Broward County Environmental Protection Department	3	1	0	1
California Air Resources Board	22	3	0	3
Canton City Health Department Air Pollution Control	2	1	0	1
Chattanooga-Hamilton County Air Pollution Control	1	1	0	1
City of Huntsville, Div of Natural Resources	1	1	0	1
City of Jacksonville Environmental Quality Division	2	1	0	1
City of Toledo, Environmental Services Division	3	1	0	1
Clark County, NV DAQEM	5	1	1	0
Cleveland Air Pollution Control Agency	7	1	0	1
Colorado Department of Public Health And Environment	13	2	3	0
Connecticut Department of Environmental Protection	9	1	0	1
Cook County Department of Environmental Control	8	1	2	0
Dayton Regional Air Pollution Control Agency	5	1	0	1
DC Dept. Of Health - BEQ Air Quality Div.	3	1	2	0
Delaware Dept Natural Resources and Environmental Control	7	1	1	0
Fairfax County Air Pollution Control	1	1	0	1
FDEP Ambient Monitoring Section	1	1	0	1
Florida Dept of Environmental Protection, Central District	6	1	0	1
Florida Dept of Environmental Protection, Northeast District	1	1	0	1
Florida Dept of Environmental Protection, Northwest District	3	1	1	0
Florida Dept of Environmental Protection, South District	1	1	0	1
Florida Dept of Environmental Protection, Southeast District	1	1	0	1
Florida Dept of Environmental Protection, Southwest District	2	1	0	1
Forsyth County Environmental Affairs Department	3	1	1	0
Georgia Air Protection Branch Ambient Monitoring Program	22	3	0	3
Great Basin Unified APCD	1	1	0	1
Hamilton County Department Of Environmental Services	11	2	0	2
Hawaii State Department Of Health	5	1	0	1
Hillsborough County Environmental Protection Commission	1	1	0	1
Idaho Department Of Health And Welfare-Environment Division	4	1	3	0
Illinois Environmental Protection Agency	29	4	6	0
Indiana Depart Of Environ Management/Office Of Air Management	32	5	5	0
Indianapolis Division Of Air Pollution Control	7	1	3	0
Jefferson County, AL Department of Health	4	1	0	1
Jefferson County, KY Air Pollution Control District	3	1	0	1
Kansas Department Of Health And Environment	12	2	0	2
Kentucky Division For Air Quality	16	2	0	2
Knox County Department Of Air Pollution Control	4	1	0	1
Lake County Health Department Division Air Pollution Control	2	1	0	1
Linn County Health Department	3	1	0	1
Mahoning-Trumbull Air Pollution Control Agency	3	1	0	1
Maine D.E.P. Bureau Of Air Quality Control, Augusta	6	1	2	0
Maricopa County Health Department	2	1	1	0
Mass Dept Environmental Protection-Div Air Quality Control	18	3	4	0
Mecklenburg County Air Quality	3	1	0	1
Memphis-Shelby County Health Department	5	1	0	1
Metropolitan Health Department/Nashville & Davidson County	3	1	0	1
Miami-Dade County Department of Environmental Resources Management	3	1	0	1
Michigan Dept Of Environmental Quality-Air Quality Division	23	3	0	3
Minnesota Pollution Control Agency, Division of Air Quality	25	4	0	4
Mississippi DEQ, Office of Pollution	15	2	0	2
Missouri Laboratory Services Program	11	2	1	1
Mojave Desert AQMD	1	1	0	1
Mt Dept Of Environmental Quality, Air Quality Division	12	2	2	0
Nebraska Department Of Environmental Control	5	1	2	0

Defined Primary PM2.5 Monitors in AQS

(Sorted by Reporting Organization)

Agencies highlighted in yellow (3rd column) have not established primary monitors in AQS and therefore collocation records are not being generated

Agency Description	# NAMS/ PAMS/SLAMS PM2.5 Sites	15% (Minimum of 1)	Primary AQS PM2.5 Monitors	△
New Hampshire Air Resources Agency	8	1	2	0
New Jersey State Department Of Environmental Protection	20	3	3	0
New York State Department Of Environmental Conservation	37	6	4	2
North Carolina Dept Of Environment And Natural Resources	18	3	5	0
North Carolina Western Regional Air Pollution Control Agency	1	1	1	0
North Dakota State Department Of Health	8	1	0	1
Northern Sierra APCD	1	1	0	1
Ohio EPA, Central District Office	5	1	0	1
Ohio EPA, Northeast District Office	2	1	0	1
Ohio EPA, Southeast District Office	3	1	0	1
Oklahoma Dept. Of Environmental Quality Air Quality Division	3	1	1	0
Omaha-Douglas County Health Department	2	1	1	0
Orange County Environmental Protection Division	2	1	0	1
Oregon Department Of Environmental Quality	24	4	0	4
Palm Beach County Health Department	2	1	0	1
Pennsylvania Department Of Environmental Protection	24	4	0	4
Philadelphia Air Management Services	5	1	1	0
Pima County Health Department	2	1	0	1
Pinellas County Department Of Environmental Management	2	1	0	1
Polk County Physical Planning	3	1	0	1
Portsmouth City Health Dept Division Air Pollution Control	3	1	0	1
Puerto Rico Environmental Quality Board	14	2	1	1
Rhode Island DEM And DOH	5	1	1	0
Salt River Pima-Maricopa Indian Community of Salt River Reservation, AZ	1	1	1	0
San Diego County Air Pollution Control District	10	2	0	2
San Luis Obispo County APCD	1	1	0	1
Sarasota County Environmental Services	1	1	0	1
South Carolina Department Health And Environmental Control	14	2	4	0
South Coast Air Quality Management District	17	3	3	0
South Dakota Dept Environmental Protection Air Quality Prog	10	2	1	1
Springfield-Greene County Air Pollution Control Authority	1	1	0	1
St Louis City Division Of Air Pollution Control	3	1	0	1
St Louis County Health Department Air Pollution Control	2	1	0	1
State Of Louisiana	22	3	0	3
State Of Maryland Air Management Administration	17	3	2	1
Tennessee Division Of Air Pollution Control	6	1	1	0
Texas Commission On Environmental Quality	17	3	0	3
University Hygenic Laboratory	12	2	0	2
Utah Department Of Environmental Quality	9	1	3	0
Ventura County APCD	15	2	0	2
Vermont Agency Of Environmental Conservation	4	1	1	0
Virgin Islands Department Of Planning & Natural Resources	2	1	0	1
Virginia State Air Pollution Control Board	17	3	0	3
Washington State Department Of Ecology	11	2	0	2
Washoe County District Health Department	1	1	0	1
Wayne County Air Pollution Control Division	3	1	0	1
West Virginia Air Pollution Control Commission	6	1	1	0
West Virginia Northern Panhandle Regional Office	5	1	1	0
Wisconsin Dept Of Natural Resources, Air Monitoring Section	13	2	3	0
Wyoming Air Quality Division, Dept Of Environmental Quality	5	1	0	1

No Primary monitors have been defined

Not Enough Primary monitors have been defined

The difference between the number required and the number defined is greater than 0

PM2.5 Approved Regional Methods (ARM)

1. Must meet Class III Equivalency Criteria
 - Precision
 - Correlation
 - Additive and multiplicative bias
2. Tested at site(s) where it will be used
 - 1 site in each MSA/CMSA up to the first 2 highest pop MSA/CMSA
 - 1 site in rural area or Micropolitan Statistical Area
 - Total of 3

If the ARM has been approved by another agency then:

- 1 site in MSA/CMSA and 1 site in rural area or Micropolitan Statistical Area
 - Total of 2
3. 1 year of testing all seasons covered
 - 90 valid sample pairs per site with at least 20 valid sample pairs per season.
 - Values < 3 ug/m³ may be excluded in bias estimates but this does not affect completeness criteria.
 4. Collocation to establish precision not required-
 - peer reviewed published literature or data in AQS that can be presented is enough
 5. ARM must be operated on an hourly sampling frequency providing for aggregation into 24-hou average measurements.
 6. Must use approved inlet and separation devices (Part 50 Appendix L or FEM Part 53)
 - Exception –methods that by their inherent measurement principle may not need an inlet or separation device.
 7. Must be capable of providing for flow audits
 - Exception –that by their inherent measurement principle measured flow is not required.
 8. Monitoring agency must develop and implement appropriate procedures for assessing and reporting precision and accuracy.

Routine Monitoring Implementation

9. Collocation of ARM and FRM/FEM at 30% of SLAMS network or at least 1/network
 - At 1 in 6 day sampling frequency
 - Located at design value site among the largest MSA/CSA
 - Collocated FRM/FEM can be substituted for ARM if ARM is invalidated
10. Collocation ARM with ARM
 - 7.5% of sites or at least 1 site
11. Bias assessment (PEP)
 - Same frequency as Appendix A

ARM Approval

1. New ARM- EPA NERL, RTP, NC
2. ARM that has been approved by another agency- EPA Regional Administrator

Proposed Class III Equivalency Criteria for PM_{2.5} and PM_{10-2.5}

1. 3 candidate samplers co-located with 3 FRM samplers in each of 3 “test site” areas (A, B, C). It is suggested that applicant seek approval of each proposed test site.
 - a. FRM samplers to be of single channel design and meet basic PM_{2.5} siting criteria
2. Seasons- 2 seasons (summer and winter) in test site areas A and B, and winter in Area C (5 total test campaigns)
 - a. Summer- Warmest 3-4 months
 - b. Winter- Coolest 3-4 months
3. Sample frequency- daily concurrent sampling (24-hour values) for a target of 23 valid days.
 - a. Valid test day- 2 valid FRM values and 2 valid candidate values (explanation for missing data required.)
 - b. FRM shall run for minimum of 22 and not more than 25 hours. Basically follows Method 2.12 sampling and analytical procedures.
4. Test concentration range 3-200 $\mu\text{g}/\text{m}^3$ - looking for as wide a range as possible.
5. Data shall be aggregated appropriately to determine equivalent mean concentrations representative of the same time period for candidate and reference methods.
 - a. In addition, hourly average concentration shall be obtained and submitted for each candidate Class III method.
 - b. Data from each test site (3) shall be evaluated separately
 - c. Data within test sites (seasons) shall be aggregated
6. Acceptance- 4 essential measures will be calculated
 - a. Precision
 - b. Correlation
 - c. Multiplicative bias (slope)
 - d. Additive bias (intercept)
 - e. Used the PM_{2.5} DQOS at 1-3 day sampling frequency to determine acceptance criteria.
7. Candidate sampler needs to achieve acceptance criteria on all 4 criteria at each site.

Alion Science and Technology
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Durham, NC 27713
919-405-3140

NATTS PT Sample Price List *
All prices are for one sample (Study)

Samples provided as “tack-on” to regularly scheduled PT Study

Metals: \$ 800
Carbonyl: \$ 650 (specify Supelco or Waters cartridge)
VOC: \$ 700 (Client supplies a cleaned canister)

Samples to be prepared independent of the PT schedule

Metals: \$ 1110
Carbonyl: \$ 850 (specify Supelco or Waters cartridge)
VOC: \$ 1120 (Client supplies a cleaned canister)

- Includes shipping in 48 contiguous states

Purchase orders are accepted.

Tentative 2006 schedule (not yet approved by EPA)

Metals: 4 studies – 1 each calendar quarter.
VOC: 4 studies – 1 each calendar quarter.
Carbonyl: 2 studies - second and fourth quarter.

Prices are valid through December 31, 2006

QA Strategy Priority List -Updated 1/6/2006			
Priority	Time	Recommendation/Action Item	Comment
1.17	1.69	State and locals need to have a full time person for QA for the air monitoring	Included language in new CFR
1.22	1.78	OAQPS needs to develop DQOs for the NAAQS. In addition, there should be a project to evaluate converting the DQOs for PM2.5 to include performance-based standards.	Included language in new CFR
1.24	1.47	Have vendors of new instruments be required to develop adequate SOPs as part of the reference and equivalency process (may need to be added to SOP form).	Informed Mon Group about this. Should have been added.
1.28	1.50	National air monitoring QA conference (annually) to help consistency (fund through 105, like AIRS conf.)	Completed
1.31	2.00	Use of automated zero-span, precision checks to validate data	Trying to push this with NCore Level II
1.35	1.18	Correct problems of uploading precision data in AIRS.	Corrected
1.39	1.81	Need DQOs to do DQA - Work on priority DQOs	Trying - we're now working on PM coarse and Precursor
1.39	1.85	Getting DQO tool working with AIRS	
1.41	1.71	Review grant process to tie QA costs to monitoring costs	Trying with 2006 Grant and Monitoring Strat
1.41	2.03	Continue the development of Validation Templates for the other criteria pollutants	Completed
1.44	1.90	Development of critical review criteria in AIRS	
1.47	1.76	Get more state and locals in on which documents are more important to them, to prioritize revisions	
1.47	1.80	Provide real time feedback.	
1.47	1.97	Redbook needs updating -- have calls with states and regions	Started in FY 2004
1.47	2.12	Training for TSAs, DQAs, and data validation	
1.50	1.44	QA forum for continued support and exchange of information.	Yes
1.50	1.47	PAMS NPAP should be conducted in the January to March time frame so that potential problems can be rectified prior to the ozone season.	
1.53	1.74	Ensure funding for QA training incorporated into grants	
1.53	2.15	Use of the new AIRS system to develop more data assessment/validation techniques that could then be consistently used by all SLTs.	AMP255 Report on AQS
1.56	1.33	Define or clarify attributes or responsibilities of QA person or manager	In new CFR but need to add details to Redbook
1.56	1.72	Clear discrimination between guidance and regulation	Think we are doing a good job in our regs and guidance
1.56	1.94	Training for managers so they understand components/need for QA	
1.56	2.47	Automate measurement systems as much as possible. Providing state of the art measurement, data logging/data transfer and QC systems will provide cost savings in the long run and provide for QC at higher frequency at no additional	Using NCore level II as an example
1.59	1.63	Recommendations for NPAP program: eliminate duplication in the program, EPA could certify states that do have QA in place, conduct round robin with labs	In Monitoring Strategy
1.59	1.65	Need to work out details of graded approach.	Completed- Regions Reviewing
1.59	1.79	Ensure AIRS summarizes data as DQOs indicate	
1.59	1.81	Review each methods and QA for "musts" and "shalls". Identify "musts" in regulation without describing frequency or acceptability.	
1.59	2.03	Provide statistical assessments (maybe available in new AIRS)	Contracted for the in 2005
1.59	2.15	Combine all guidance into one document (Redbook)	May do by Web links or appendices
1.61	1.53	Improve cooperation from States/locals/tribes in getting precision data into AIRS.	
1.63	2.38	Use of data logging, telemetry or "lease-lines" to get data into information management systems and validation systems more quickly.	Making a push for this in Monitoring Strategy
1.64	1.69	Audit PAMS and get results out before ozone season.	
1.65	1.74	Develop audit teams from SLT and Regions in order to share experience/	
1.65	1.82	Update SRP guidance and make practical.	
1.65	1.91	Develop a template QAPP (fill in the blanks) -- generic for any air program, not just criteria pollutants -- needs to handle graded approach	Turbo-QAPP
1.66	2.09	Need a mechanism to ensure corrective action from evaluation and updates in	
1.67	2.00	Development of auditing QA software tool	
1.67	2.14	Incorporate spatial representativeness (or lack thereof) into DQOs	Will for PMcoarse
1.68	2.06	Streamlining audit programs (audit auditors?), SRP & NPAP	
1.69	1.85	NPEP funding through STAG is appropriate	Trying to do this in 2006
1.69	1.94	Develop QC checks based on system performance. Some checks, due to better, more stable equipment may not need to be checked as frequently as required or suggested.	

QA Strategy Priority List -Updated 1/6/2006			
Priority	Time	Recommendation/Action Item	Comment
1.72	1.97	Burden reduction of precision and accuracy checks should be addressed in the regulations.	Described in new CFR with related guidance
1.75	1.60	There should be a mechanism in place to allow industry to pay for their participation in the NPAP (PSD)	Completed
1.76	1.29	Electronic record keeping -- check with OEI to see if electronic files are acceptable (legally defensible?)	We looked into this but more work needed
1.76	1.76	Guidance to EPA regions on the need for consistency in the review of QAPPs	
1.76	1.85	Develop training on how to conduct TSA. Minimal steps to take during TSA. Include in Redbook	
1.76	2.00	Certification/accreditation program - hierarchical approach -- OAQPS-Regions-State/local	
1.76	2.09	Conduct TSA of Tribal air monitoring programs.	
1.76	2.21	Provide statistical assessments (maybe available in new AIRS)	P & B in AQS
1.76	2.34	Through-the-probe zero/span/precision checks - have checks cover entire inlet/manifold systems	
1.78	1.67	Expand AMTIC Web links to training	
1.81	2.23	Use of computer technology by the site operator to access data that has been reviewed at the "central office" in order to implement corrective actions in a more real time mode	
1.88	1.71	Guidance for QAPPs should clearly state that QAPPs that are for projects covered by a QMP do not need to duplicate information in the QMP or applicable	In Graded approach
1.88	1.91	Define needs for QMPs for all agencies.	Included language in new CFR
1.88	2.19	Review and develop "minimal" TSA form in Redbook	
1.89	1.97	Contractual mechanisms to provide support, such as DQO/DQA statistical	
1.90	1.61	Less compounds could be included in the PAMS NPAP audits. Participants would prefer if higher quality standards (NIST) are utilized with less compounds.	
1.93	2.07	Develop documentation for states that opt out of NPAP	NPAP Implementation Plan & Memo
1.93	2.25	Revise EPA QA/R-2 with the substantive changes discussed in Workshop. Will not revise R2; will create ambient air specific R2.	
1.94	1.78	Definition/interpretation of primary and transfer standards	
1.94	2.06	Can flagging help get data in sooner? Flag data in AIRS as "unvalidated" for use more real time, then pull "unvalidated" flag off quarterly or yearly	
1.97	2.14	Guidance on timeliness and consistency in performing site evaluations	
2.00	1.88	Collect the various audit forms being used in the nation in one place and make available to the air monitoring community.	
2.00	2.19	Set minimal level of conducting site evaluations (Redbook)	
2.00	2.26	Develop the guidance for small organizations and projects, such as those who can collapse the QMP and QAPP	Did this with graded approach. Being reviewed by Regions
2.06	1.63	Look to see if there is a requirement for a central filing systems -- QA order 5360.	
2.06	2.03	Recommendations/guidance for central filing system (Redbook) including what should be in those filing systems	
2.07	1.90	Perform survey to determine "acceptable" PE programs in order to avoid	
2.11	2.03	Place some important training in regulation	
2.11	2.06	What is reporting organization? Does this need to be re-defined or should the definition be strictly adhered	Included language in new CFR
2.11	2.33	Develop web- based training courses	
2.11	2.47	OAQPS oversight is very helpful -- site visits annually for some (maybe with MSR)	
2.12	2.21	Develop combo TSA, QSA audit form	
2.12	2.24	The graded approach needs to be addressed in the CFR, including specific criteria for different levels of QAPPs with examples	Did not include in CFR but have developed separate paper for Regional approval and insertion into QA
2.12	2.31	Increase consistency between EPA Regional offices on how they review QMPs.	
2.13	1.57	Review Table 5-1 in Redbook- ensure agreement on record types	
2.18	1.82	Conduct polls of the Regions and State/locals on who is conducting site	
2.19	2.16	There should be a minimum level of tracking TSAs. (Maybe in the new AIRS)	
2.21	2.32	Tools to help w/DQAs, beginning with annual/3-year reports.	
2.27	1.87	Revise CFR to quarterly certifications	Included language in new CFR
2.29	2.21	APDLN - more hubs, e.g., Alaska, Guam	
2.61	2.33	Combine 58 Appendix A and B	Included language in new CFR