

# **Current Developments in Ambient Air Monitoring – EPA Information and Perspectives**

NESCAUM Monitoring Advisory Committee Meeting

May 16-17, 2006 Newport, RI

Phil Lorang

Ambient Air Monitoring Group

EPA Office of Air Quality Planning and Standards

# Organizational Changes in EPA

- OAQPS reorganized in February 2006.
  - More focus on innovation, community, collaboration, and climate.
  - 5 divisions.
  - More centralized administrative support.
- Air Quality Assessment Division ~= Emissions Monitoring and Analysis Division
- People changes:
  - Tom Curran replaced Peter Tsirigotis as AQAD Division Director.
  - Phil Lorang became permanent as Rich Scheffe's replacement as monitoring group leader.
  - Rich Scheffe became permanent as AQAD's science guy.
  - Tom Helms replaced James Hemby who had earlier replaced Fred Dimmick as "Trends" group leader.
  - AQS & AIRNOW Contacts
    - Greg Green = Division Director.
    - Chet Wayland = Associate Division Director.
    - Phil Dickerson = AIRNOW group leader.
    - Ed Lillis & Co. = AQS
  - Bill Harnett took over (from Lydia Wegman) as Division Director for SIPs.

# Ambient Air Monitoring Group

## Contacts

- Kevin Cavender – PAMS, Network assessment/design
- Dennis Crumpler – PEP, QA for federal networks
- Joe Elkins – OAQPS-level QA cop, gas traceability
- Tim Hanley – Funding, PM, NCore, Rulemaking
- Mike Jones – air toxics
- David Lutz – AQS submission, certification
- Mike Papp – QA Team Leader
- Joann Rice - on temporary assignment outside the monitoring group, but still leading the conversion of STN to IMPROVE carbon protocols.
- Solomon Ricks – PM2.5 speciation lab, field issues
- Mark Shanis – NPAP, ozone SRP
- Nealson Watkins – Biowatch, near roadway, ammonia
- Lewis Weinstock – PMcoarse Network, precursor gas training, on-site monitoring station

# Other OAQPS Monitoring Contacts

- Measurement Technology Group
  - Conniesue Oldham – group leader
  - Dennis Mikel – air toxics QA
  - Jim Homolya – ammonia, air toxics methods, smoke monitoring

# Air Toxics Monitoring Grants

- In general
  - PLEASE bill EPA promptly for work performed!
- FY2004 Cycle
  - See <http://www.epa.gov/ttn/amtic/toxfy04.html> for 16 awarded projects. Four projects in NESCAUM states.
  - No projects yet ready to report findings.
- FY2005 Cycle
  - Projects have been ranked.
  - Regional Offices will complete the awards.
  - Announcement process is sensitive.
  - Seven projects in NESCAUM states.

# Air Toxics Monitoring Grants, cont.

- FY2006 Cycle
  - RFA in July.
  - Contemplated changes from 2005 approach
    - Source-oriented and community “bins” combined
    - One methods bin, instead of two
    - Bin for analysis of existing data from past projects regardless of sponsorship history
    - Attention to 1999 NATA hotspots

# Air Toxics Monitoring Grants, cont.

- FY2007 Cycle
  - EPA has decided to reduce the funding for the RFA by 1.8 million.
    - Those funds shifted to “NATTS.”
    - Precise use is to be decided.
      - Actual cost reimbursement?
      - More sites?
      - More pollutants?
      - Bridge funding for small number of at-risk speciated mercury sites?
      - NATA-based issues?
      - What do you think?
  - Considering devolution of local scale monitoring process to the Regional Office level.
    - \$4.4 million would be allocated to RO level.
    - Not a thin allocation to every state.
    - Still limited to specific, new, short term projects.
  - Depending on intended use of the shifted 1.8 million, some or all of it may also be devolved.

# Chrome<sup>+6</sup>

- 1999 NATA calls chrome<sup>+6</sup> *a **Regional cancer risk driver***
  - 10 in a million to more than 1 million people or 100 in a million to more than 10,000 people.
  - This is one notch down from where chrome<sup>+6</sup> scored in the 1996 NATA.
  - Also, chrome<sup>+6</sup> is a ***regional noncancer hazard driver*** (i.e., more than 10,000 people living in census tracts where the typical exposure exceeded the reference concentration for this compound).
- All NATTS sites are now supposed to be sampling for chrome<sup>+6</sup>.
  - Nominally \$22K per site, of \$122K
  - Uses separate sampler
  - Most sites send the filters to ERG lab for analysis.
  - Are the others sampling and analyzing?
- ERG lab recently switched to a revised method
  - Jim Homolya is the EPA champion
  - Different filter media
  - Different lab procedures
- Some say the revised method still not good enough.
  - Discussions with critic(s) continue
  - Could be the topic of a FY2006 grant proposal (needs S/L air agency as prime grantee)
- Some say chrome<sup>+6</sup> is always a local issue, not appropriate for “national trends” monitoring.
- Some say total chrome is as useful as chrome<sup>+6</sup> if proper source control is the local concern



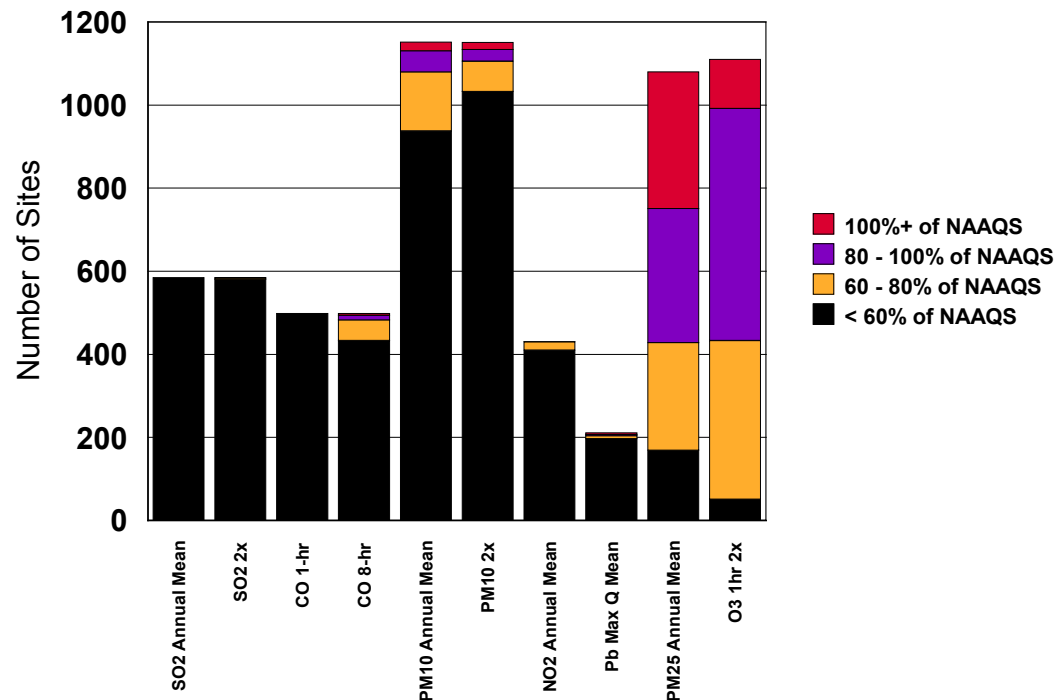
# Acrolein

- The only ***National noncancer hazard driver*** in the 1999 NATA
  - Hazard quotient exceeded 1.0 for more than 25 million people
- Old NATTS method based on cartridges
  - Widely recognized as biased low, not much point to doing.
  - Some have felt otherwise, and have continued to use it.
- New NATTS method based on canisters with SIM-mode mass spec.
  - Jim Homolya and Dennis Mikel are the EPA champions.
  - SIM mode also can give better MDLs for other HAPs in canister.
  - Now being used at ERG lab.
  - First major use was in post-Katrina areas. Showed more hits relative to health benchmark. Closer look has been taken.
- State/local NATTS labs will each get \$7500 in extra 2006 funding to implement new approach.
- If you disagree with the new method, stay engaged!

# National Ambient Air Monitoring Strategy and Rulemaking

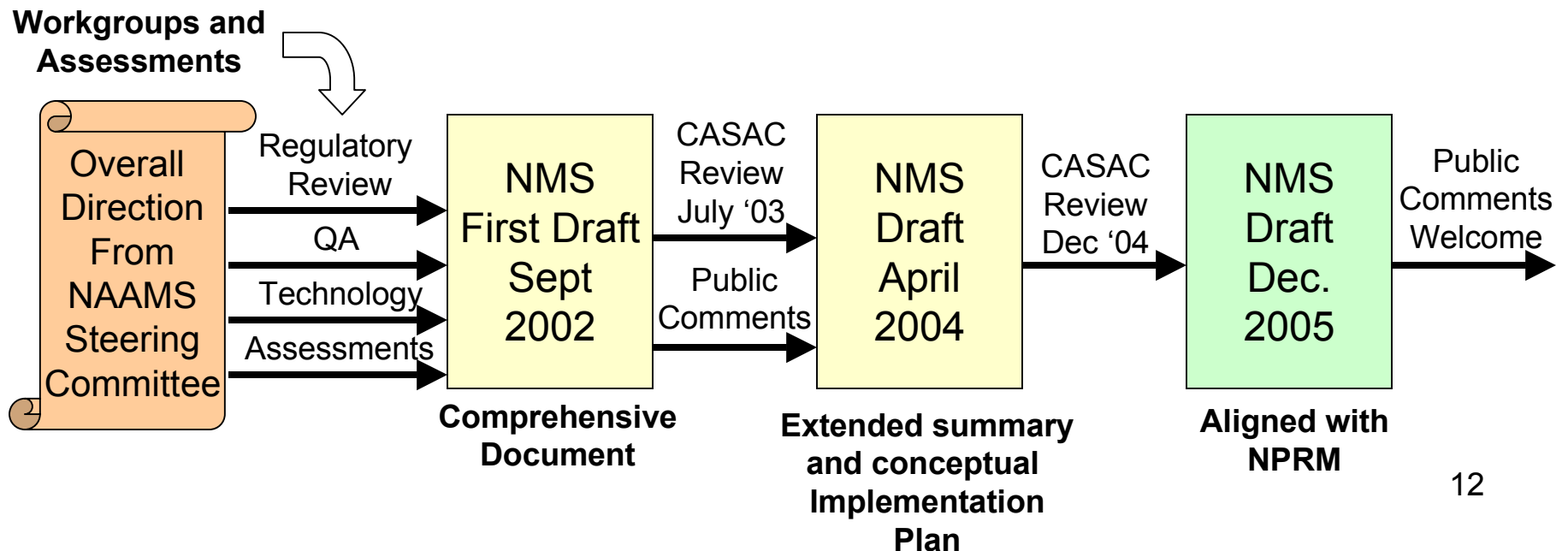
# What is the National Ambient Air Monitoring Strategy?

- The strategy is an explicit effort to lay down a multiple pollutant measurement infrastructure to drive and support integrated air program management.
- The strategy shifts the nations networks from being a “compliance” dominated orientation toward greater support of public reporting, program accountability, and scientific needs.
- The overall approach and concepts have been endorsed by EPA’s Science Advisory Board and recognized the National Academy of Sciences in their Reports on Air Quality Management and Particulate Matter.



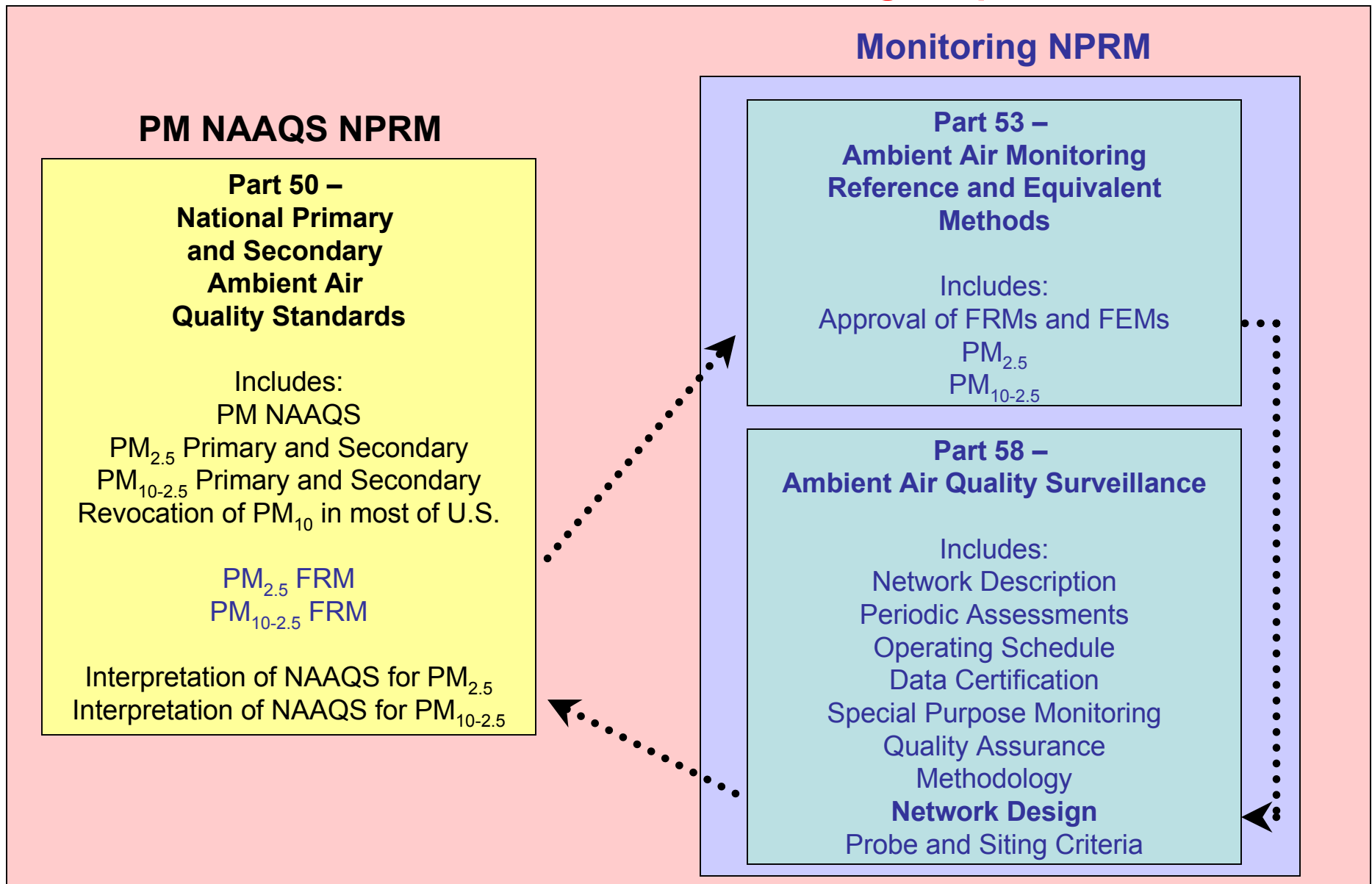
# National Ambient Air Monitoring Strategy Document

- Updated in December 2005 for consistency with proposed monitoring rule.
  - <http://www.epa.gov/ttn/amtic/monstratdoc.html>
- Developed through a stakeholder driven process over the last 5 years by EPA and State/local/Tribal Air Monitoring Agencies
- Review and input from CASAC Ambient Air Methods and Monitoring Subcommittee and former CASAC Subcommittee on the NAAMS



# How do the PM NAAQS and Ambient Air Monitoring Packages fit together?

## PM NAAQS and Ambient Air Monitoring Proposed Rules



# Notice of Proposed Rulemaking (NPRM) Schedule

- Signed by EPA Administrator on December 20, 2005
- Published in the Federal Register on January 17, 2006
  - <http://www.epa.gov/ttn/amtic/40cfr53.html>
- Public hearings held on March 8, 2006
- Public Comment ended April 17, 2006
  - Over 500 separate comments
- Expect Final Rulemaking by September 27, 2006

# 40 CFR Part 50

National Ambient Air Quality Standards  
for Particulate Matter; Proposed Rule -  
PM Federal Reference Methods

# PM<sub>2.5</sub> Federal Reference Method (FRM)

- **High precision, well performing method**
- Minor changes proposed to the PM<sub>2.5</sub> FRM that are already part of routine operation through equivalent method use or national user modifications:
  - Adopt the **Very Sharp Cut Cyclone (VSCC)** as an approved second stage separator for PM<sub>2.5</sub>. This would be in addition to the WINS
  - Use of **Diethyl Sebacate (DOS)** oil as an alternative oil in the WINS
  - Extend **filter recovery extension time**; 96 hours ? **177 hours** (7 days, 9 hours)

**VSCC**



	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Sample Days									
Current Recovery Period									
Proposed Recovery Period									

- Additional modification proposed based on experiences gained with PM<sub>2.5</sub> FRM and chemical speciation program
  - Modify filter transport temperature and post-sampling time requirements for final laboratory analysis; **filter transport temperature maintained at or below average ambient temperature during sampling** allows up to 30 days for post sampling conditioning and weighing.



# Proposed PM<sub>10-2.5</sub> FRM

- Two concurrently operated low-volume samplers with one measuring PM<sub>10</sub> and the other PM<sub>2.5</sub>
- Peer Reviewed by Clean Air Scientific Advisory Committee (CASAC)
  - Consensus support for PM<sub>10-2.5</sub> difference method as the most appropriate choice for an FRM to:
    - Approve continuous FEMs for use in the actual network
    - Quality assurance of network (via collocation)
  - Several strengths and weaknesses noted
  - Support for dichotomous method as possible alternative FRM, pending resolution of issues
  - Support for continuous Federal Equivalent Methods as primary method for use in network.

**BGI PM<sub>10</sub> FRM**



**BGI PM<sub>2.5</sub> FRM**



**R&P PM<sub>10</sub> FRM  
Sequential Sampler**



**R&P PM<sub>2.5</sub> FRM  
Sequential Sampler**



Peer review report available at:  
[http://www.epa.gov/sab/pdf/casac\\_06001.pdf](http://www.epa.gov/sab/pdf/casac_06001.pdf)

$$PM_{10} - PM_{2.5} = PM_{10-2.5} \quad 17$$

# 40 CFR Parts 53 & 58

Revisions to Ambient Air Monitoring  
Regulations; Proposed Rule

# Part 53 - Major Components

- Approval of reference and equivalent methods
- New performance based criteria for  $PM_{2.5}$  and  $PM_{10-2.5}$  equivalent methods

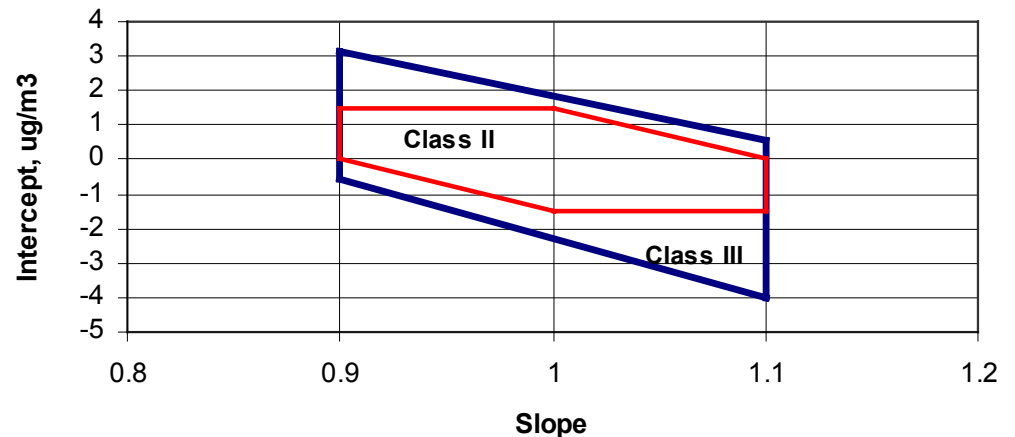
# Approval of Reference and Equivalent Methods

- $PM_{10-2.5}$  FRM
  - $PM_{10}$  and  $PM_{2.5}$  low-volume FRMs that are the same make and model
- Federal Equivalent Method's for both  $PM_{2.5}$  and  $PM_{10-2.5}$ 
  - Three classes of equivalent methods ranging from method with minor deviations from the FRM as Class I to continuous methods as Class III
    - A filter-based dichotomous method would be categorized as a Class II method
- Proposed Testing for both  $PM_{2.5}$  and  $PM_{10-2.5}$ 
  - Class II - at two sites from list below, one east and one west in one season each
  - Class III – at three sites (two seasons at test sites A & B, winter season only at test site C)
    - Solicit comment on a possible fourth site
- Test Sites
  - Site A – Los Angeles basin - characterized by high nitrates and semi-volatile organic pollutants
  - Site B – Northeastern to Mid-Atlantic – characterized by high sulfate, high relative humidity and wintertime conditions
  - Site C – Higher elevation Western U.S. city – characterized by cold weather, winds and dust.

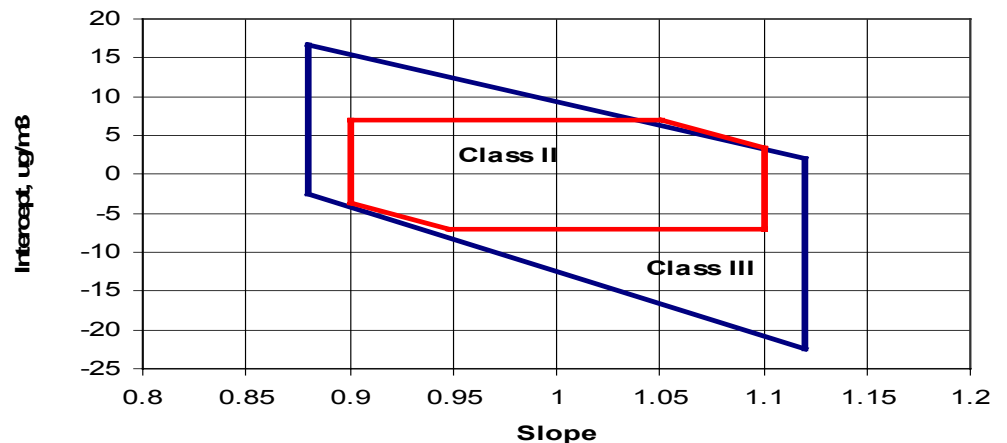
# PM Federal Equivalent Methods

- New performance criteria are proposed
  - Based on Data Quality Objective Process
    - Considers tradeoffs between several inputs
    - Advantage of continuous methods (Class III) in this process is that they provide higher sample frequency and completeness
  - Criteria
    - Linear regression slope and intercept as illustrated
    - Sampler precision
      - 10% for  $PM_{2.5}$  Class II
      - 15% for  $PM_{2.5}$  Class III and  $PM_{10-2.5}$  Class II and III
    - Correlation,  $>0.93$  or  $>0.95$  based on sample population

Acceptance Limits for Slope and Intercept for  $PM_{2.5}$  Methods



Acceptance Limits for Slope and Intercept for  $PM_{10-2.5}$  Methods



# Part 58 – Major Components

- Network Plans and Assessments
- Updated Special Purpose Monitoring (SPM) provisions
- Network minimums go away for CO, SO<sub>2</sub>, NO<sub>2</sub>, and PM<sub>10</sub>
- Revised network minimums for Pb
- Revised network minimums for O<sub>3</sub> and PM<sub>2.5</sub> based on population and design value
- Introduction of NCore multi-pollutant sites
- New monitoring network for PM<sub>10-2.5</sub>
- AQS data submittal and certification
- Revisions to QA program
- Incentives for “Approved Regional Methods” for PM<sub>2.5</sub>
- PAMS monitoring program

# Network Plans and Assessments

- Annual Monitoring Network Plans
  - Basically same as current practice; however, allow opportunity for public comment and formalize approval.
  - First one due July 1, 2007
    - “...must be made available for public inspection at least 30 days prior to submission to EPA.”
    - Approved by the EPA Regional Administrator, who shall provide opportunity for public comment and shall approve or disapprove within 120 days
- Air Quality Assessments every five years
  - Comprehensive in scope
  - First one due July 1, 2009
  - Guidance forthcoming

# Special Purpose Monitors (SPM)

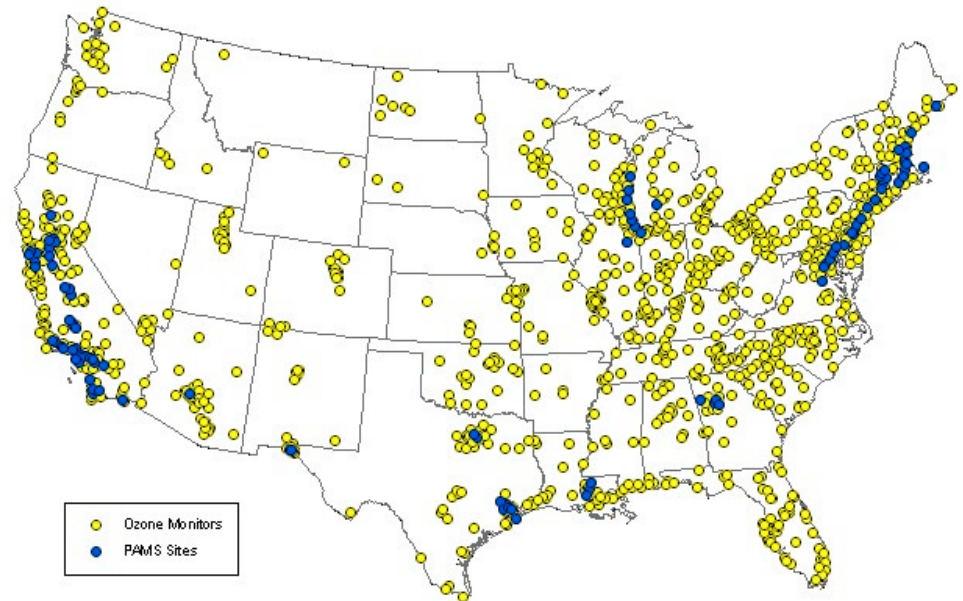
- What is it/isn't it?
  - Site can be used for up to 24 months without being compared to NAAQS, (except may be used for existing NAAQS when States request an existing non-attainment area be designated to attainment)
  - Designated in annual network plan and AQS
  - Cannot be a monitor used to meet the minimum monitoring requirements
  - Cannot be an existing SLAMS monitor
- What applies to it?
  - All NAAQS pollutants
  - **QA and methods apply for FRM/FEM/ARM**
  - Flexibility for network design, and probe and siting criteria
  - Data submitted to AQS for FRM/FEM/ARM
- Other
  - No prior approval needed to shut down an SPM



# Ozone Monitoring Program

- Network minimums proposed to be based on combination of:
  - Population of an area
  - Design value
- **Overall, expect about the same number of ozone sites, although some may move for better spatial coverage**

Ozone Monitoring Network



# Ozone Monitoring Program

MSA or CSA <sup>1</sup> Population	Design Value = 115% of any O <sub>3</sub> NAAQS	Design Value +/-15% of any O <sub>3</sub> NAAQS	Design Value = 85% of O <sub>3</sub> NAAQS <sup>2</sup>
≥10M	3	4	2
4-10M	2	3	1
1M - 4M	2	2	1
350K – 1M	2	2	1
200K – 350K	1	1	0
50K – 200K	1	1	0

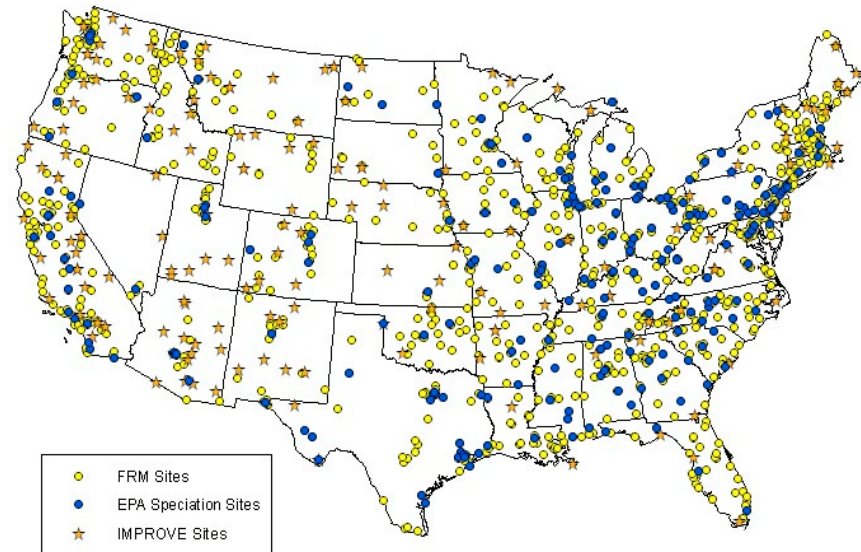
1 – Requirements apply to CSA, if available

2 – These minimum monitoring requirements apply in the absence of a design value

# PM<sub>2.5</sub> Monitoring Program

- Network minimums proposed to be based on combination of:
  - Population of an area
  - Design value
- Continuous PM<sub>2.5</sub> monitors required at one half (round up) the sites identified above
- Background and transport sites still apply for each State
- Speciation Trends Network required (~54 sites)
- **Overall, expect most FRM/FEM sites to continue; however, some redundant urban sites to be eliminated**

PM<sub>2.5</sub> Monitoring  
(peak network operation)



# PM<sub>2.5</sub> Monitoring Program

## Minimum Required FRM/FEMs

MSA or CSA <sup>1</sup> Population	Design Value = 115% of any PM <sub>2.5</sub> NAAQS	Design Value +/-15% of PM <sub>2.5</sub> NAAQS	Design Value = 85% of any PM <sub>2.5</sub> NAAQS
>1M	2	3	2
500K – 1M	1	2	1
250K – 500K	1	1	0
100K – 250K	1	1	0
50K – 100K	1	1	0

1 – Minimums apply to CSA, where applicable

- Continuous PM<sub>2.5</sub> monitors required at one half (round up) the sites identified above
- Background and transport sites still apply for each State
- Speciation Trends Network required in addition to table above

# AQS Data Submittal and Certification

- Includes
  - SLAMS
    - NCore, PAMS, and all other routine stations
  - SPMs using FRM/FEM/ARMs
- Data Reporting
  - Quarterly data reporting remains the same – within 90 days past the end of the quarter
    - Pollutant Data - SO<sub>2</sub>, CO, O<sub>3</sub>, NO<sub>2</sub>, NO, NO<sub>y</sub>, Pb, PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>10-2.5</sub>, chemical speciation
    - Other information - PM<sub>2.5</sub> sampler-generated Temp, BP, and **field blank mass for filter based FRM/FEMs**
    - Met Data - NCore multi-pollutant sites and PAMS
  - 6-month Data Reporting – past the end of the quarter
    - VOC, and if collected, carbonyl, NH<sub>3</sub>, and HNO<sub>3</sub>
- Certification
  - Propose to move up certification date from July 1 to May 1, starting in 2009.

# Revisions to the Quality Assurance Program

- Ensure regs reflect current EPA QA Policy and requirements
  - QAPP/QMP, QA Manager (Lead), Graded Approach
- Combined Appendix A and B (PSD)
- DQOs for PM<sub>10-2.5</sub> and O<sub>3</sub> identified
  - As before, DQOs are goals to inform when to take action for improvement, not to invalidate
- Removed out of date QA methods
  - SO<sub>2</sub>/NO<sub>2</sub> Manual Audit Checks
- Revised Performance Evaluation Language of PEP and NPAP
  - Monitoring org responsibility but allows for continued Federal implementation
- Expanded audit concentration levels to account for precursor gas monitoring
- Reduced burden where experience has shown that we could
  - PEP Reduction
  - PM Collocation Reduction (number of sites & sampling frequency)
- Changed Statistics (forms and levels of aggregation)
  - Confidence limits at the site level for gaseous pollutants

# Approved Regional Methods (ARMs) for PM<sub>2.5</sub>

- PM<sub>2.5</sub> continuous method approved for use within a State, local, or Tribal agency used to meet multiple monitoring objectives such as NAAQS, AQI...
- Would allow S/L/T to optimize their PM<sub>2.5</sub> network with well performing continuous methods
- Testing Criteria
  - Uses same performance criteria as Class III methods; however, flexibility to demonstrate sample precision
  - Testing occurs at subset of sites in network within which it's intended to be used

# PAMS Monitoring Program

Measurement	Minimum Required
Speciated VOC	Two sites per area, with one being a Type 2
Carbonyl Sampling	Type 2 site in serious or above areas for the 8-hour
NOx	All type 2 sites
NOy	One site per area at the Type 1 or 3 site
CO (ppb level)	One per area at the Type 2 site
Ozone	All PAMS sites
Surface Met	All PAMS Sites
Upper Air Met	One representative location per PAMS area

- Currently 109 stations in 25 Ozone non-attainment areas
- Represents a reduction to about half the existing requirements
- Allows PAMS programs to be more customized to local data needs
  - Recommend keeping Air toxics data users in mind if there are any reductions



# 2007 Budget Issues

- STAG funds for state/local agencies reduced about \$33 million unless reversed by Congress.
  - \$16 million in general 105 funding. Linked to progress on CO, NO<sub>2</sub>, SO<sub>2</sub>, and lead NAAQS attainment.
  - \$17 million in PM<sub>2.5</sub> monitoring. Linked to 40% state match for continuing programs.
- FY2007 Program and Grant Guidance is posted
- <http://www.epa.gov/ocfo/npmguidance/index.htm>
- Gives themes, planned accomplishment lists, and regional-level funding allocations.
- Except, PM<sub>2.5</sub> allocations still under deliberation until June 30.

# Allocation of 16.2 Million 105 Funding Cut

- Cut was distributed among ROs based on nominal allocation of 2006 STAG funds to CO, NO<sub>2</sub>, SO<sub>2</sub>, and lead.
  - Except, lead programs in Region 7 were partially restored using old mobile source outreach funding.
- Regional Offices have since been charged by HQ to get the nominal allocations updated to better match actual.

Region	Nominal 2006 Allocation	Estimated Monitoring Expenditures
1	8%	5%
2	10%	6%
3	11%	13%
4	12%	14%
5	7%	12%
6	8%	13%
7	5%	5%
8	8%	6%
9	22%	23%
10	9%	3%

# QA Funding

- \$401,000 of general 105 funds set aside to support NPAP
  - Deducted after the normal allocation of funds to Regional Offices, based on site counts and RO plans for contractors vs. EPA staff to do audits.
  - Will be returned to ROs if states indicate intention and ability to implement adequate and independent gas audits.
  - Memo on process will be signed by Steve Page soon.
    - Will ask for response by July 15.
    - Will show escrowed funds by state/local agency.
- \$1,518,000 of PM2.5 funds set aside for QA (PEP)
  - 200,000 less than in 2006; 400,000 less than 2005.
  - Also returnable.
  - Regulation and policy changes will also reduce state-paid QA costs.
- \$470,000 for air toxics QA activities
  - May need less.

# Air Toxics Monitoring

- \$9,853,000
- Kept as 103
  - Rationale based on still-evolving nature, linkage to new risk-based PART goals, etc.
- “Local Scale” monitoring reduced by \$1,800,000, to \$4,419,000.
- “NATTS” increased by same amount.
  - Specific uses of increase to be decided collaboratively

# “Off the Top” PM2.5 Funds

- No EPA decision/straw on changes in funding for the 110-site IMPROVE program.
- \$835,000 for second phase of carbon channel conversions to IMPROVE protocol
  - Less than the recently implemented savings in shipping costs
- Return to 2005 level of filter purchases.
  - Funding in 2006 was reduced as we use up an inventory excess.
- 50% reduction in “national data analysis.”

# Remaining PM2.5 Funds

- No decision on IMPROVE. Will begin thinking at 15% reduction in funding. Contact Marc Pitchford to participate.
- No distribution to Regions yet.
  - EPA has promised more consultation, as requested by STAPPA/ALAPCO letter.
  - Recent meeting agreed to create a new straw allocation based on 2001 baseline.
    - Picked since 2001 was before some Regions thinned their networks (and their funding level).
  - EPA wants to protect some sites producing data of national importance.
  - We'll also check whether the new straw provides enough federal funding for all monitoring required by proposed regulations.
- June 30 target to finish the allocation.
- Hold backs for national contracts (filters, lab services) will be determined based on actual state/local plans.

# Network Changes Beyond 2007

- Less CO, NO<sub>2</sub>, SO<sub>2</sub>, Pb
- Less PM<sub>10</sub>, but not none at all
- New PMcoarse network (January 2009)
- New NCore multipollutant network (January 2011)
- Not safe to assume level funding, making consensus building (or top-down planning) for these changes more difficult.

# Clarification About the ICR

- ICR = Information Collection Request under the Paperwork Reduction Act.
- Estimate of reporting burden for any public data collection “caused” by EPA.
- One ICR applies for the entire monitoring and data management activity.
  - Must be renewed and re-estimated every three years (July 2006) even if no change in process.
  - Must be replaced if data collection changes in nature/scope (final in Sept. 2006).
  - Public notice and comment first.
- Publication timelines have gotten crossed.
  - Notice in May 4, 2006 *Federal Register* is for the “no changes” ICR renewal. Will apply only a few months once final.
  - Notice for the “big changes” replacement ICR was part of the January 2006 NPRM. Will apply after September 2006 final rule.
  - Both notices use the same updated per unit costs but different future scenarios.



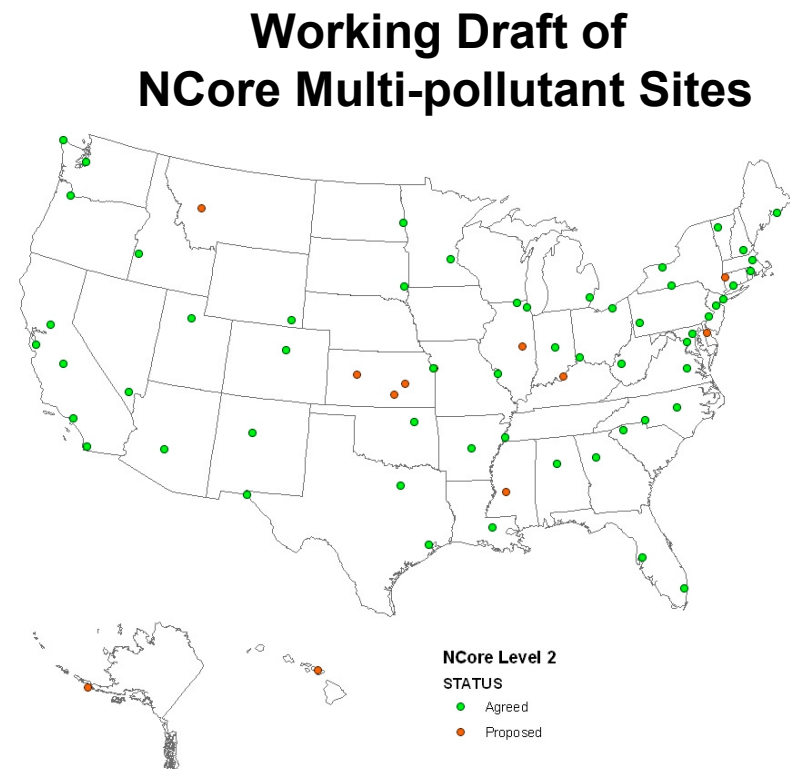
# Proposed Rules for Divestment: CO, SO<sub>2</sub>, NO<sub>2</sub>, Pb, and PM<sub>10</sub>

- Generally, for all of these pollutants the EPA Region can approve the shutdown of a monitor as part of the annual network review
  - See 58.14 for specific provisions on discontinuing monitors
- No minimums apply for CO, SO<sub>2</sub>, NO<sub>2</sub>
- PM<sub>10</sub> - No requirement for continuation in any area where the PM<sub>10</sub> NAAQS would be revoked
- Pb – required in areas where levels are still a concern
  - 2 sites required in areas above the NAAQS
    - 1 maximum exposure site
  - 10 Pb sites at NCore or urban air toxics sites for long-term trends; one per Region in most populated MSA/CSA

# Area of Investment:

## National Core (NCore) Multi-pollutant Sites

- NCore Multi-Pollutant Network
  - Pilot network ramping up now
  - Network plans due July 1, 2009
  - Full network operational by January 1, 2011
    - ~75 Sites Nationally
    - ~55 Urban Sites at Neighborhood to Urban Scale
    - ~20 Rural Sites at Regional Scale
    - 1-3 sites per State
- Pollutants
  - Particles
    - $PM_{2.5}$  filter-based and continuous, speciated  $PM_{2.5}$ , continuous  $PM_{10-2.5}$
  - Gases
    - $O_3$ ; high-sensitivity - CO,  $SO_2$ , NO/ $NO_y$
  - Meteorology
    - Amb. Temp, WS, WD, RH
  - Long-term plan to include
    - $NH_3$
    - $HNO_3$



# NO/NO<sub>y</sub>

- Nominally, 35 NO/NO<sub>y</sub> samplers have been funded to date.
- Some dissent/debate about merits, but the items under debate have gotten fewer:
  - Is 10 meters tall enough?
  - Should sampler maintain steady flow through converter during bypass?
- Meanwhile, EPA encourages continued operation of existing samplers
  - Low marginal savings from shutting them off.
  - Later, we may conclude the data are good.
  - Not much risk of data being misused to ill effect.
- Related news: EPA will be conducting field testing of a NO/trueNO<sub>2</sub>/NO<sub>y</sub> sampler this summer.

# Area of Investment:

## PM<sub>10-2.5</sub> Monitoring Program

- PM<sub>10-2.5</sub> Network
  - Network Plan
    - Due January 1, 2008
    - Can be extended to July 1, 2008
  - Implementation by January 1, 2009
  - Methods
    - Daily PM<sub>10</sub> methods can be used to demonstrate attainment through 12/31/2012 – subject to network design criteria
    - Planning for continuous FEMs as primary method in network to best support daily NAAQS

# Proposal for Minimum Required PM<sub>10-2.5</sub> Network (Total Sites = 228)

MSA Population	<b>High</b> = 80% of NAAQS (56 µg/m <sup>3</sup> )	<b>Moderate</b> 50 to 80% of NAAQS (35 to 56 µg/m <sup>3</sup> ) or unknown	<b>Low</b> < 50% of NAAQS (35 µg/m <sup>3</sup> )
≥5M	5	3	2
1M - <5M	4	2	1
500k – <1M	3	<b>1</b>	0
100k - <500k	2	<b>1</b>	0

•The minimum requirements of this table only apply to MSAs that contain all or part of an urbanized area with a population of at least 100,000 persons. Multiple MSAs in a CSA are separately subject to these requirements based on their population and design value.

•More populated areas get more monitors.

•Areas with higher estimated PM<sub>10-2.5</sub> design values get more monitors.

# PM<sub>10-2.5</sub> Network Sizing and Siting

- Minimum PM<sub>10-2.5</sub> monitoring requirements based on MSA population (at least 100,000) and estimated design value. Zero to five required sites per MSA.
  - Approximately **228 monitors required in 150 MSAs** based on 2002-2004 estimated design values and proposed PM<sub>10-2.5</sub> daily NAAQS of 70 ug/m<sup>3</sup>.
- Required sites must meet five part suitability test for comparison to NAAQS and to insure consistency with qualified PM<sub>10-2.5</sub> indicator.
  - Within boundaries of urbanized area  $\geq 100,000$ .
  - Must be in census block group of population density  $\geq 500$  people per square mile (or within enclave of  $< 5$  square miles area if population density  $< 500$ ).
  - Must be population-oriented.
  - May not be in a source-influenced microenvironment such as a microscale or localized hot spot location.
  - PM<sub>10-2.5</sub> concentrations at the site must be dominated by re-suspended dust from high-density traffic on paved roads and PM generated by industrial sources and construction sources, and must not be dominated by rural windblown dust and soils and PM generated by agricultural and mining sources, as determined by the State (and approved by the Regional Administrator) in a site-specific assessment.

# PM<sub>10-2.5</sub> Network Sizing and Siting - *continued*

- Placement of required monitors relative to sources.
  - **Minimum of 50 percent of required monitors must characterize middle-scale sized areas (100 meters to 500 meters across).** Situated in areas of expected maximum concentration from emissions from industrial sources and/or heavily traveled roadways.
  - Additional required monitors placed in middle-scale or neighborhood scale sized areas (500 meters to 4 kilometers across). Areas with high population density and some exposure to emissions from industrial sources and/or heavily traveled roadways.
  - One discretionary monitor may be placed in suburban-type residential areas in MSA's with four or five required monitors.
- Additional features.
  - Required PM<sub>10-2.5</sub> speciation sites in MSA's of population > 500,000 with estimated design values > 80 percent of proposed NAAQS. Approximately 25 sites will be required based on these criteria. EPA envisions approximately 50-100 speciation sites at a nationally diverse set of urban and rural locations.
  - EPA support for non-required rural PM<sub>10-2.5</sub> mass concentration sites to assess differences between areas dominated by wind blown crustal materials and by urban enriched coarse particles.
- NPRM solicits comment of many aspects of PM<sub>10-2.5</sub> network design.
  - For example, how to handle sites that do not meet five part suitability test, but have the potential for ambient mixes of coarse particles of the type intended to be included in the indicator.

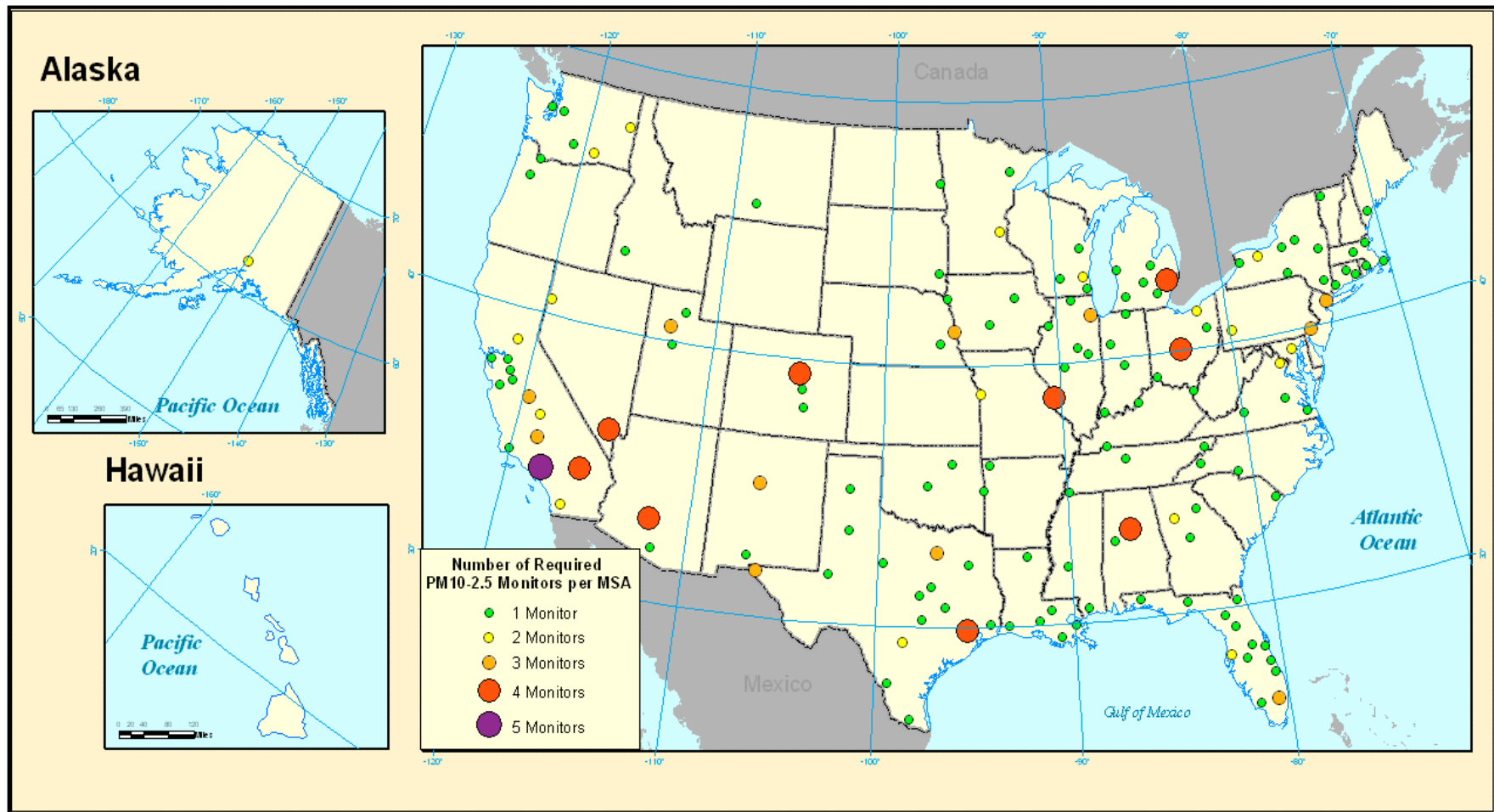


Illustration of PM<sub>10-2.5</sub> monitors that could be required by the proposed requirements in the monitoring NPRM. The circles, which are sized to indicate the number of required monitors, appear at the centroid of MSAs and do not imply the actual placement of any of the required monitors at particular locations within the MSA.