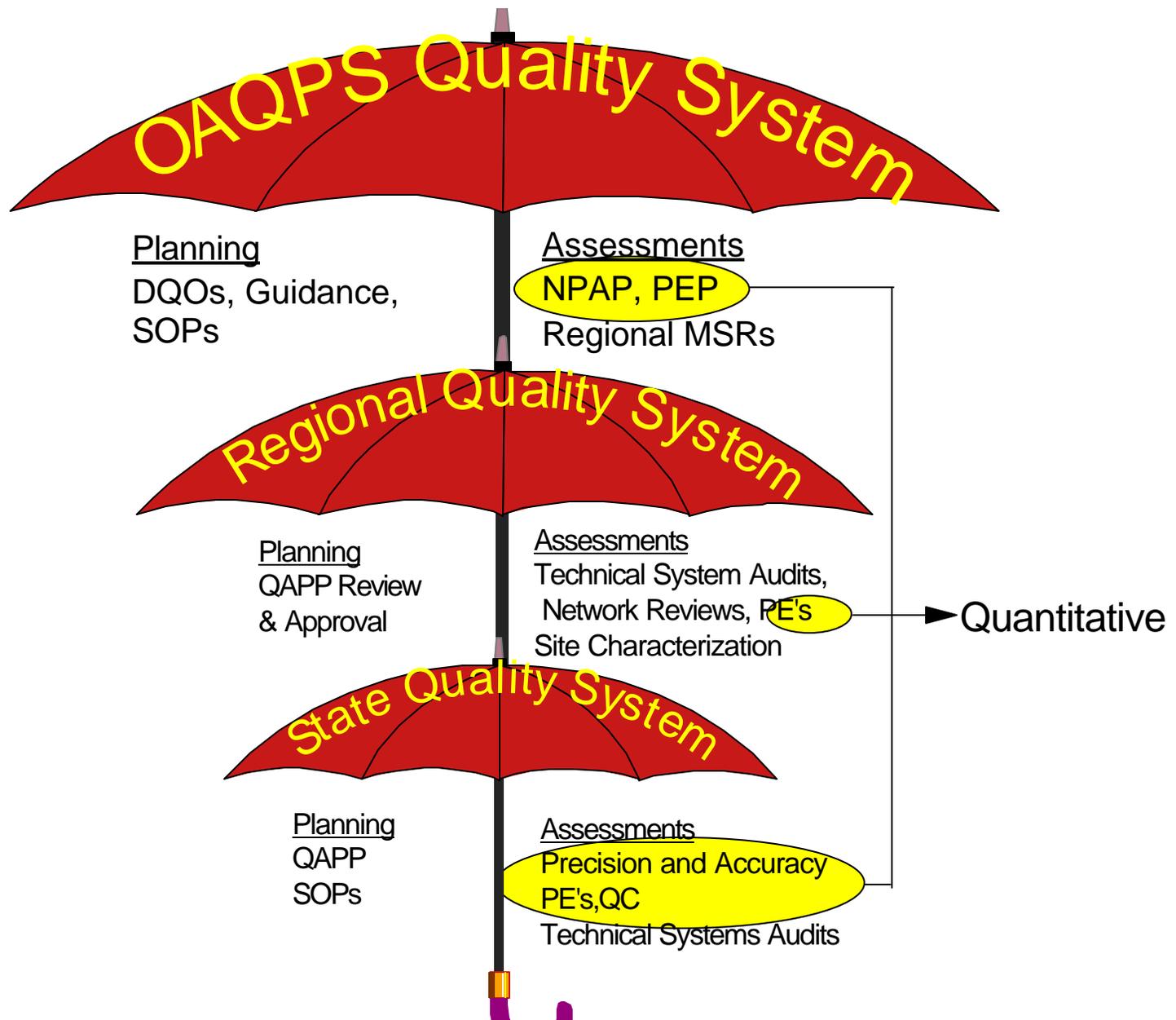# OAQPS
Quality Assurance Activities

Performance Audit Programs:
Past, Present, and Future

Purpose- Review past, present, and future program directions

Agenda

- Provide a perspective on what's occurred in the Performance Evaluation audit programs
- Brief EPA QA Professionals on the direction of NPAP and PEP programs
- Describe current status and plans

OAQPS Quality System

Planning
DQOs, Guidance,
SOPs

Assessments
NPAP, PEP
Regional MSRs

Regional Quality System

Planning
QAPP Review
& Approval

Assessments
Technical System Audits,
Network Reviews, PE's
Site Characterization

→ Quantitative

State Quality System

Planning
QAPP
SOPs

Assessments
Precision and Accuracy
PE's,QC
Technical Systems Audits

3

What are our Audit PE Programs

Performance Evaluation - A type of audit in which quantitative data generated in a measurement system are obtained independently and compared with routinely obtained data to evaluate the proficiency of an analyst, laboratory or measurement system
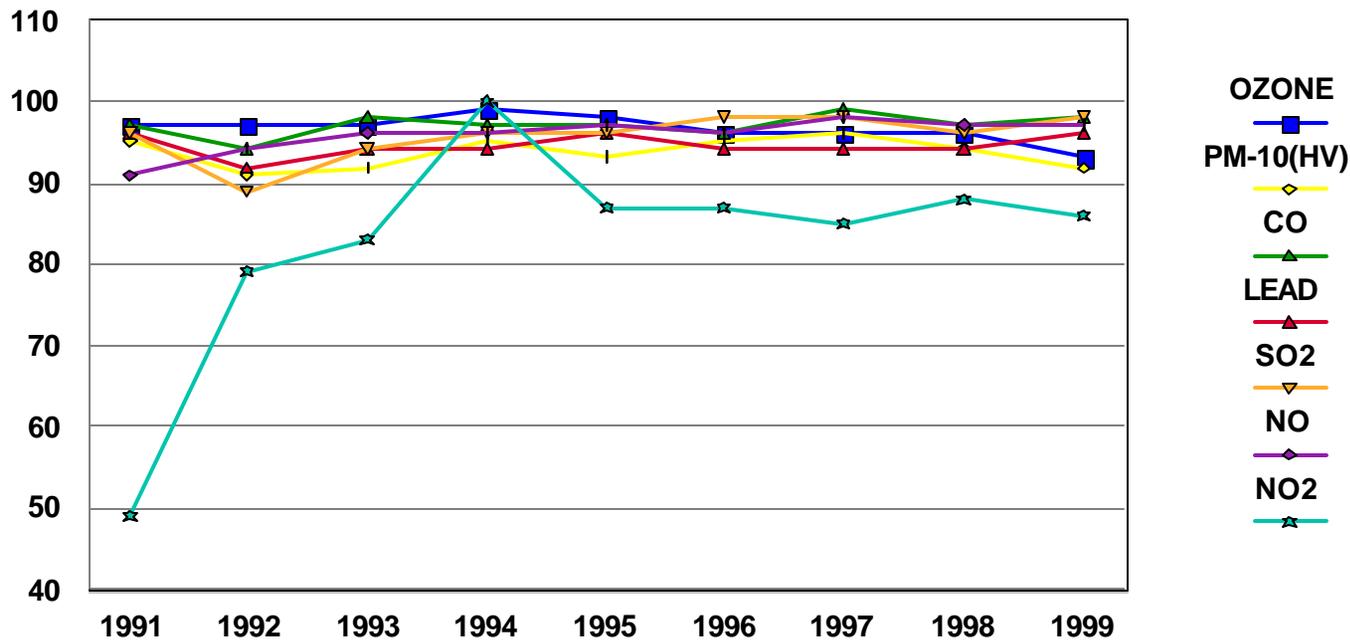
The NPAP and the PM2.5 Performance Evaluation Program (PEP) are performance evaluation programs and provide for an assessment of data quality that's:
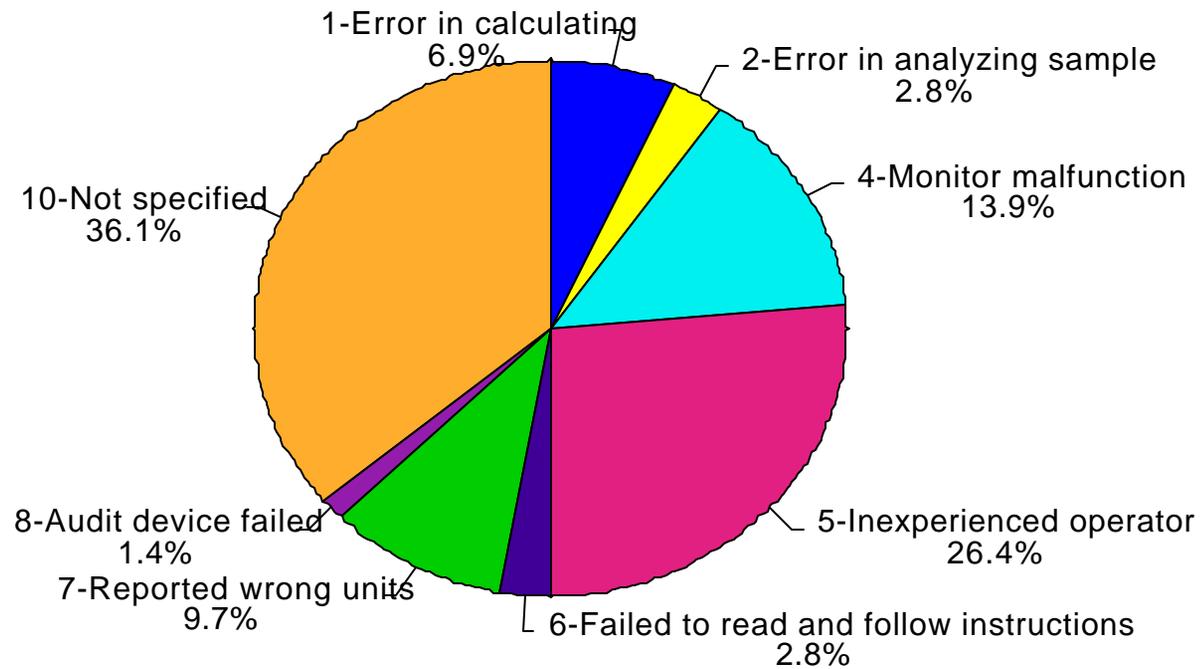
► Independent
► Objective
► Comparable nationally

4

PE Program History

- 1970's: EPA ORD QA grp in RTP-R&D&D
- 1979: 40CFR Part 58,Appendices A,B,C
  - ► Requires "participation" by agencies in SLAMS, PSD (and, later, PAMS) networks
- 1980's: Evolution of Audit Types, growth in number of participants requesting audits
- 1990's: Mailed Program stabilizes
- 1996:ORD divests QA programs to OAQPS
- 1998:OAQPS RTP starts PEP for PM2.5

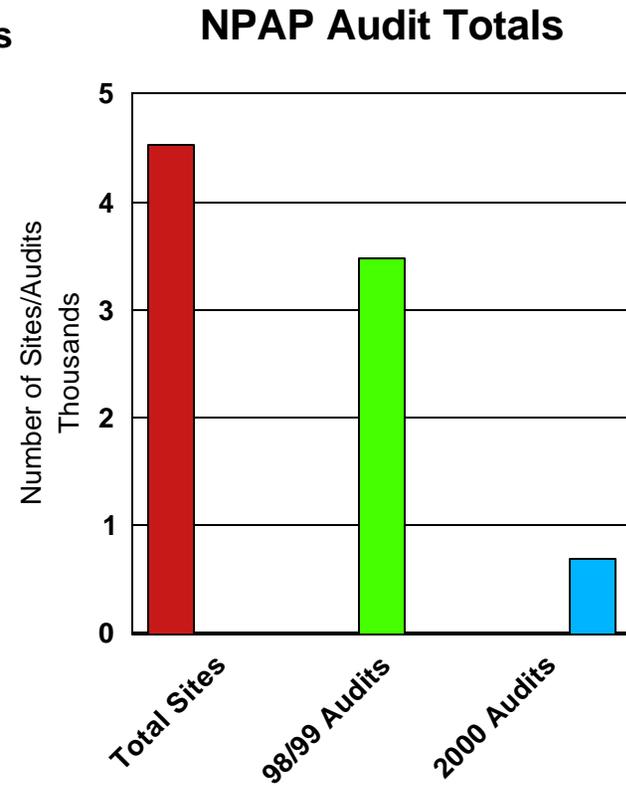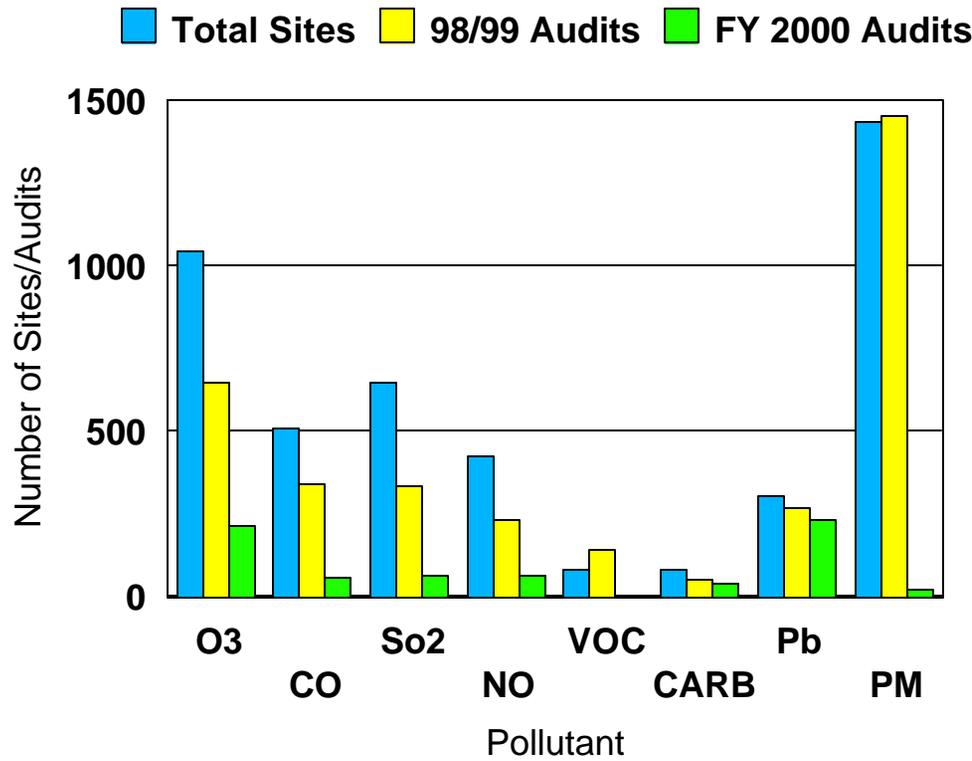# %Audits Within 15%Acceptance Limits for Audit Results

6

Reason Codes for Non-Acceptable 1997 NPAP Audits

1-Error in calculating
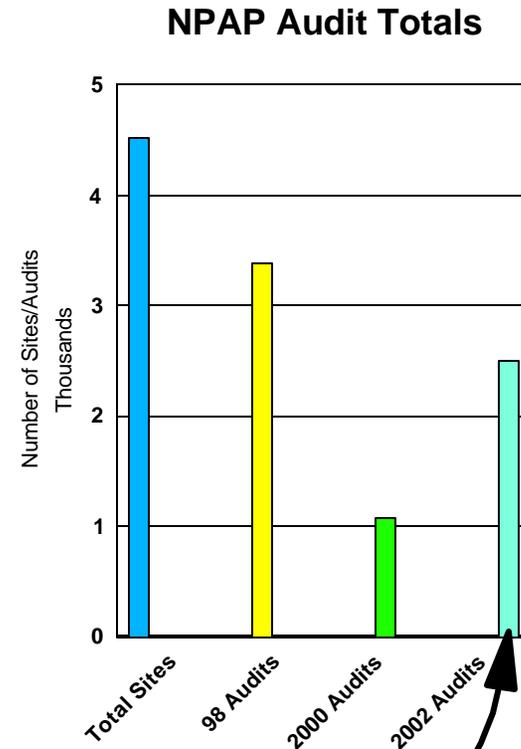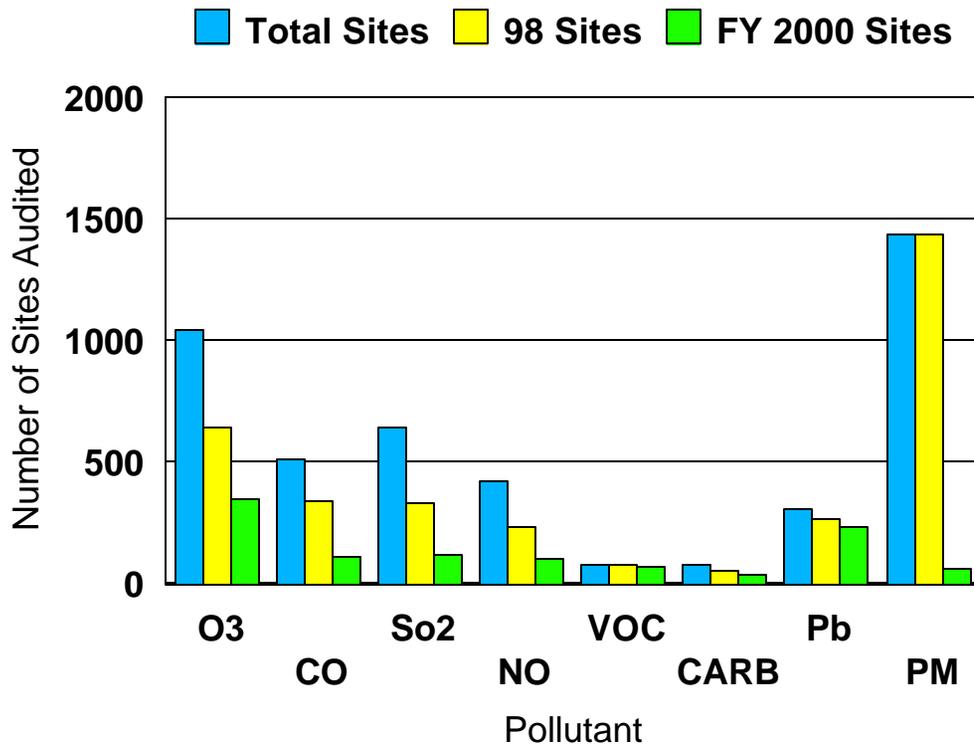6.9%

2-Error in analyzing sample
2.8%

4-Monitor malfunction
13.9%

10-Not specified
36.1%

5-Inexperienced operator
26.4%

8-Audit device failed
1.4%

7-Reported wrong units
9.7%

6-Failed to read and follow instructions
2.8%

TOTAL # RC = 72

NPAP 98/2000 Comparisons

Total Sites ☐ **98/99 Audits** ☐ **FY 2000 Audits**

NPAP Audit Totals

Left chart:
- Y-axis: Number of Sites/Audits (0 to 1500)
- X-axis: Pollutant (O3, CO, So2, NO, VOC, CARB, Pb, PM)

Right chart:
- Y-axis: Number of Sites/Audits Thousands (0 to 5)
- X-axis: Total Sites, 98/99 Audits, 2000 Audits

8

NPAP 98/2000 Comparisons

98- ~ 1million, 2000- ~ 600K

Total Sites · **98 Sites** · **FY 2000 Sites**

Number of Sites Audited vs Pollutant (O3, CO, So2, NO, VOC, CARB, Pb, PM)

NPAP Audit Totals

Number of Sites/Audits Thousands (Total Sites, 98 Audits, 2000 Audits, 2002 Audits)
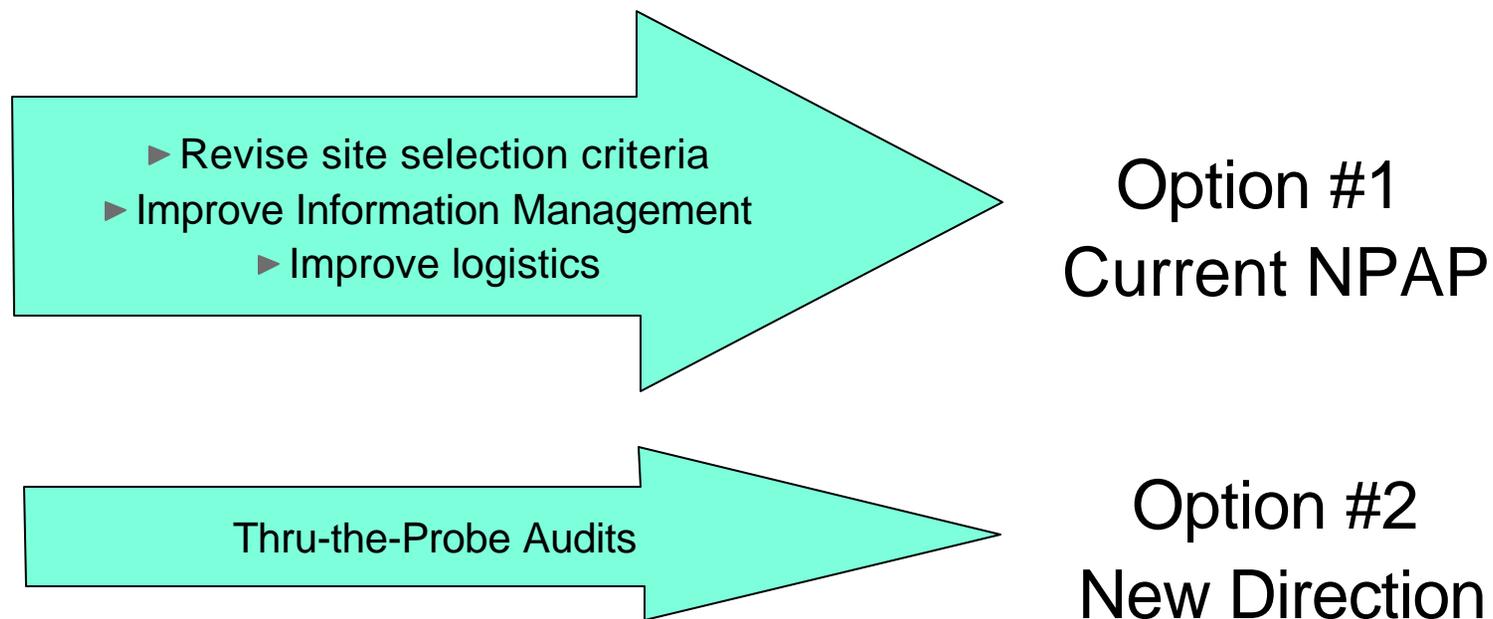
▶ 2000 focus was Ozone

▶ Goal - ~2500 audits by FY02

9
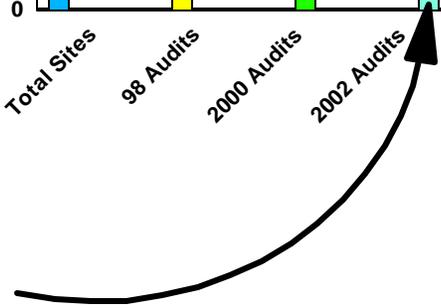
NPAP Program Improvements

- *Goal - Increase audits to acceptable level and create a more cost efficient program*

The Options

► Revise site selection criteria
► Improve Information Management
► Improve logistics

Option #1
Current NPAP

Thru-the-Probe Audits

Option #2
New Direction

NPAP New Direction
Through-the-Probe (TTP) Audits

- Current NPAP
  - ► Standards enter the samplers through a port in the back of the instrument;
  - ► disregards sample inlet and collection tubing where contamination or losses may occur.
  - ► Standard devices sacrifice sensitivity for ruggedness but still need TLC.
  - ► Devices spend a lot of time in the mail
  - ► No real time feedback
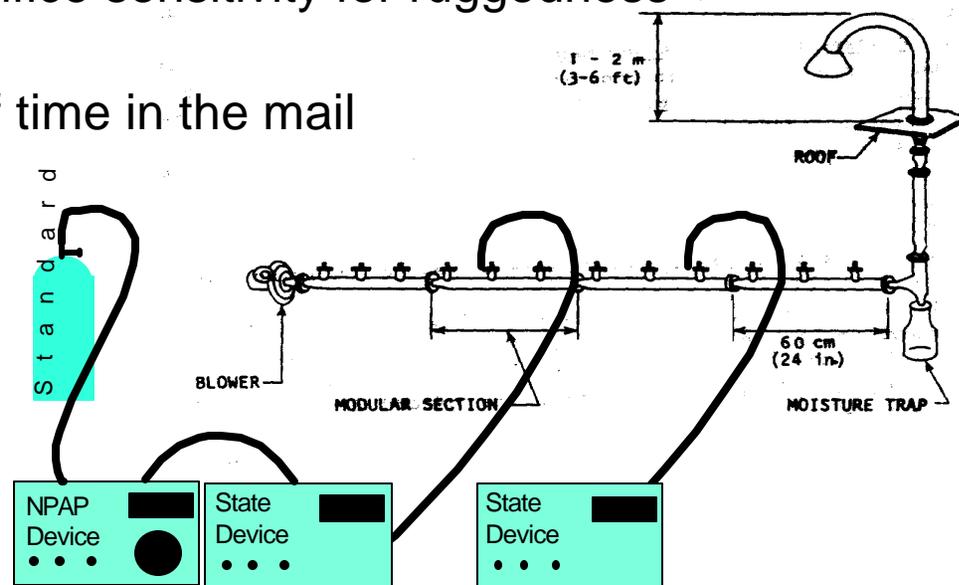
Through- the- Probe

- Evaluates entire sampling stream
- Equipment can be state of the art
- Little potential for damage
- More audits less down time
- Multipurpose uses

13
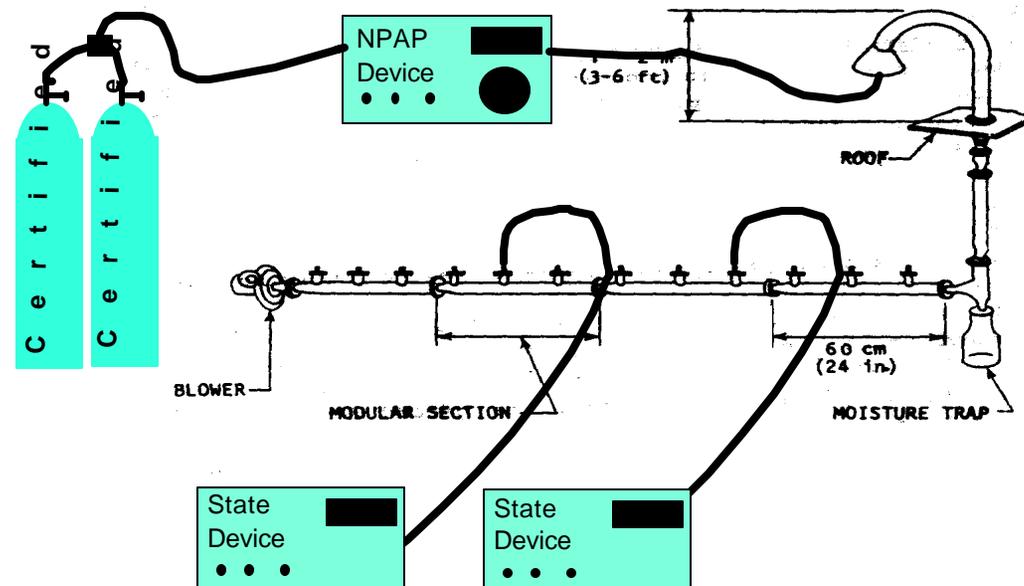
TTP- The Plan-FY01

- Acquire audit laboratories for pilot project containing
  - State of the art samplers and analyzers
  - Info management systems - immediate reporting of results (RADS)
- Involve ORIA
- Work with CARB
  - Vehicle Specs, technician training, documentation, information management
- Identify acceptable Region/State/local Tribal PE Programs
  - Perform NPAP as a check on those programs to avoid redundancies-"Audit (certify) the Auditors"
- Pilot the program in Regions 4, 5, and 6
  - Determine cost savings & implementation issues
- Continue mailable audit where needed

PM2.5 (black) & Other Criteria sans PM10 and Pb (cyan) Monitoring Sites
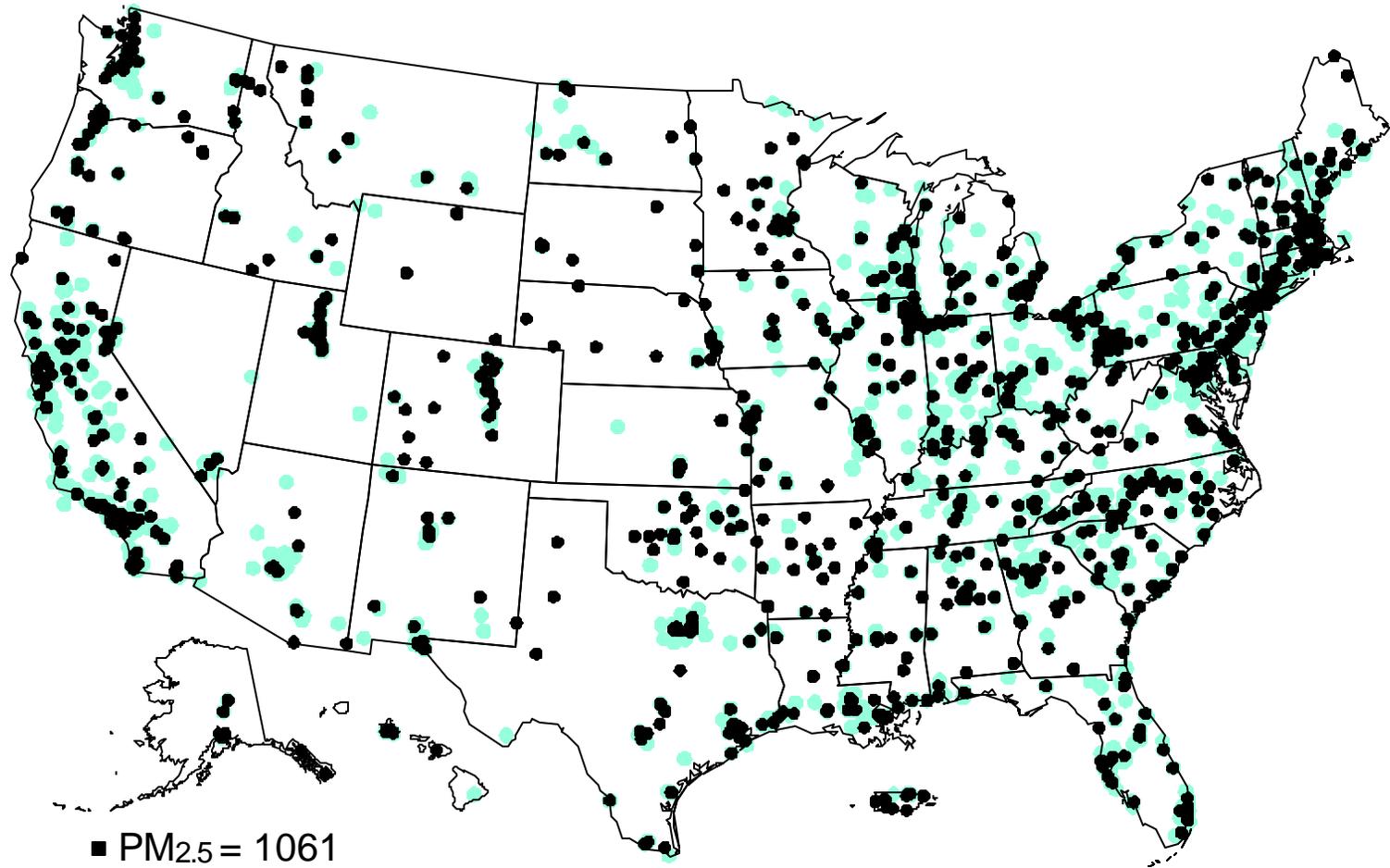
- PM2.5 = 1061
- Other Criteria = 1656
- Collocated = 426

8 labs *45 weeks * 2 sites/week= 720 sites
NPAP audits completed in ~ 3 years

15

TTP Phase In

- FY01/FY02 -
  - ▶ Acquire 3 mobile labs/information management system with FY01 initiative funds
  - ▶ Use remaining funds to make some improvements to current system
  - ▶ Use base funds (540K) to implement current NPAP
- FY03-
  - ▶ Start Pilot phase of auditing
  - ▶ Acquire another 3 mobile labs with NPAP base (540K)
  - ▶ Use remaining portion of base funds to implement mailable NPAP
- FY04
  - ▶ Purchase remaining labs with NPAP Base funding (540K)
  - ▶ Keep needed portion for NPAP to perform necessary mail outs
  - ▶ phase into RAD funds (if approved)

NOTE - Monitoring Strategy and State PE programs will move TTP to a "regionally based" program utilizing fewer audit labs.

Audit Program Funding

Issue - funding for PE programs include a mix of
EPA and STAG funds

- Discussed several funding options at OAQPS RTP/DC briefings
  - ► Solution
    - go after new funds (1 million recurring in RAD) for FY03
    - Short Term (FY01, 02) split costs between STAG and OAQPS
      for short term pilot with move to longer term STAG funded
      program

Improvement History, 2001

- Winter:375K initiative funds provided for improvement:
- Winter,Spring: Briefings on improvement options for NPAP - EMAD, Regions (monthly conference calls), OAQPS, SAMWG
  - ►Fix NPAP or combine NPAP and PEP Programs for efficiencies
- Result of Discussions
  - ►Move toward combining operation and then funding of both
  - ►Regions and SAMWG require Pilot to assess cost effectiveness
- Summer: Get Agreement to Pilot in 2, then 3 Regions
  - ►Pilot Regions commit persons, type and purpose of Mobile Lab
- Fall: Buy, Send Major Equipment to Pilot Regions
- Winter: 4th Region joins Pilot, already involved in NPAP MOU

Improvement History, 2002

- Winter: Start Trailer,Vehicle Activities
- Spring: Pilot Region Group TTP trng at ARB
  - ▶ Continue Trlr,Vehicle Acquisition Prep
- Summer: Trlr,Vehicle Solicitation,Award
  - ▶ Start Smaller TTP Equipment purchases
  - ▶ Start TTP SOP prep from ARB SOP
- Fall: Start Implementation Plan Prep
  - ▶ Finish prep., start new NPAP Contract Process
- Winter: Pilot Grp Trlr Inspection in FL

Improvement History, 2003

- New Audit Support Contract:Part of funding awarded,funded, end of January;Work Plan received end of February
- 1year of difficulties of getting Mobile Lab Vehicle through GSA;regional delays in readiness for Mobile Lab- Biosurveillance
- PRs for 2 more Mobile Labs,Major TTP insts
- ESAT funding buy-in PRs to Regions 5,6,7
- Trailers delivered to Regions 5 and 7

Summary

- Strategy for wise use of initiative funds have been developed
- NPAP program
  - ► Starting to work with pilot Regions
  - ► Have identified a number of additional candidate Regions/labs
  - ► Will continue purchase audit equipment over next few months
  - ► Revise and expand SOP
  - ► Finish Implementation Plan
  - ► Develop, test, and transition to more user friendly, less costly database management system for archive of past data, and entry, reporting and summary of new data