

# EPA Infrastructure for Ambient Air Bias Traceability to NIST

Changes and Status  
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# GOAL: STRONGER REGIONAL SUPPORT

FOCUS ON 3 PROGRAMS

EPA NPAP: MAILED (?PSD) + MOBILE TTP

SRP: 2 UPGRADES, BASE IN LV

PROTOCOL GASES VERIFICATION:  
3<sup>RD</sup> PARTY

# NPAP(M+TTP) + PEP = NPEP

- 2003 TRANSITION: Mailed Only, Back of the Analyzer (BOA) to Mailed(R1,2,3,8,9,10)+Mobile Through-the-Probe (TTP)/Station Inlet (3~used)
- 2004, Transition continues: Mailed (Same 2003) +TTP
- May 2004: 1st group training and certification, Like PEP (Written+ Hands-on): R2,4-7,9
- SOP (Adding to Draft as Use) and Implementation Plan (still in Prep).
- New: Reg2 Hi Flow Rate Subsystem (May-June)

# 2004(+3Mos.) NPEP 1sts: Status/Accomplishments

- EPA SOP Development (MBS+ 6Regions)
- Staff /SOP Training Development; 2 Sessions in '04;Class+Hands on; Certs.
- EPA Tow Vehicle/Trailer Training (C+HO)
- Table of PEs and ESAT Costs; 5 Regns-2 EPA,3 ESAT; 2New R; TTP 1st, TTP+PEP
- Reg.2 Study: Hi Sampling Flow Rate Sites
- Reg 9 TTP/CARB TTP,LT 5%;Other QA Cks

**SUMMARY OF THROUGH-THE-PROBE AUDITS  
IN 2004**

<b>Region</b>	<b>O<sup>3</sup></b>	<b>CO</b>	<b>SO<sup>2</sup></b>	<b>NO<sup>2</sup></b>	<b>Total # of Audits for each Region</b>	<b>\$\$ (K=1000)</b>
<b>1</b>					<b>0</b>	<b>5 (1x trng,1FS)</b>
<b>2</b>					<b>0</b>	<b>10(1xtrng,2FS)</b>
<b>4*</b>	24	2	6	1	<b>33</b>	<b>35(3xtrng,2FS)</b>
<b>5</b>	32				<b>32(EPAonly)</b>	<b>(35; -12 for training, 2x)</b>
<b>6*</b>	16	9	8	9	<b>42</b>	<b>35 PE; 6.4 Trng, 3x</b>
<b>7</b>	15	2	3	1	<b>21(EPAonly)</b>	<b>(25 MOU)</b>
<b>9*</b>	32	13	4	9	<b>58</b>	<b>30 PE+8.3Trng, 3x,1;2x,2)</b>
<b>10</b>					<b>0</b>	<b>5(2xtrng, 1)</b>
<b>Total Audits for all Regions</b>	<b>119</b>	<b>26</b>	<b>21</b>	<b>20</b>	<b>186</b>	<b>*Est\$/PE~=1.7</b>

<b>TTP COMPARISON: REGION 9 &amp; CARB::</b>		
<b>AUDIT LEVEL</b>	<b>RPD CARB</b>	<b>RPD EPA</b>
<i>O3</i>		
<b>High</b>	<b>-1.7</b>	<b>0.952</b>
<b>Mid</b>	<b>-2.8</b>	<b>0.930</b>
<b>Low</b>	<b>-2.9</b>	<b>0.638</b>
<i>CO</i>		
<b>High</b>	<b>-5.2</b>	<b>-4.64</b>
<b>Mid</b>	<b>-1.6</b>	<b>-0.07</b>
<b>Low</b>	<b>2.9</b>	<b>7.13</b>
<i>SO2</i>		
<b>High</b>	<b>-3.3</b>	<b>-6.27</b>
<b>Mid</b>	<b>-3.2</b>	<b>-6.05</b>
<b>Low</b>	<b>-2.9</b>	<b>-4.01</b>
<i>NO2</i>		
<b>High</b>	<b>-4.3</b>	<b>-0.22</b>
<b>Mid</b>	<b>-5.2</b>	<b>-0.03</b>
<b>Low</b>	<b>-5.5</b>	<b>0.34</b>

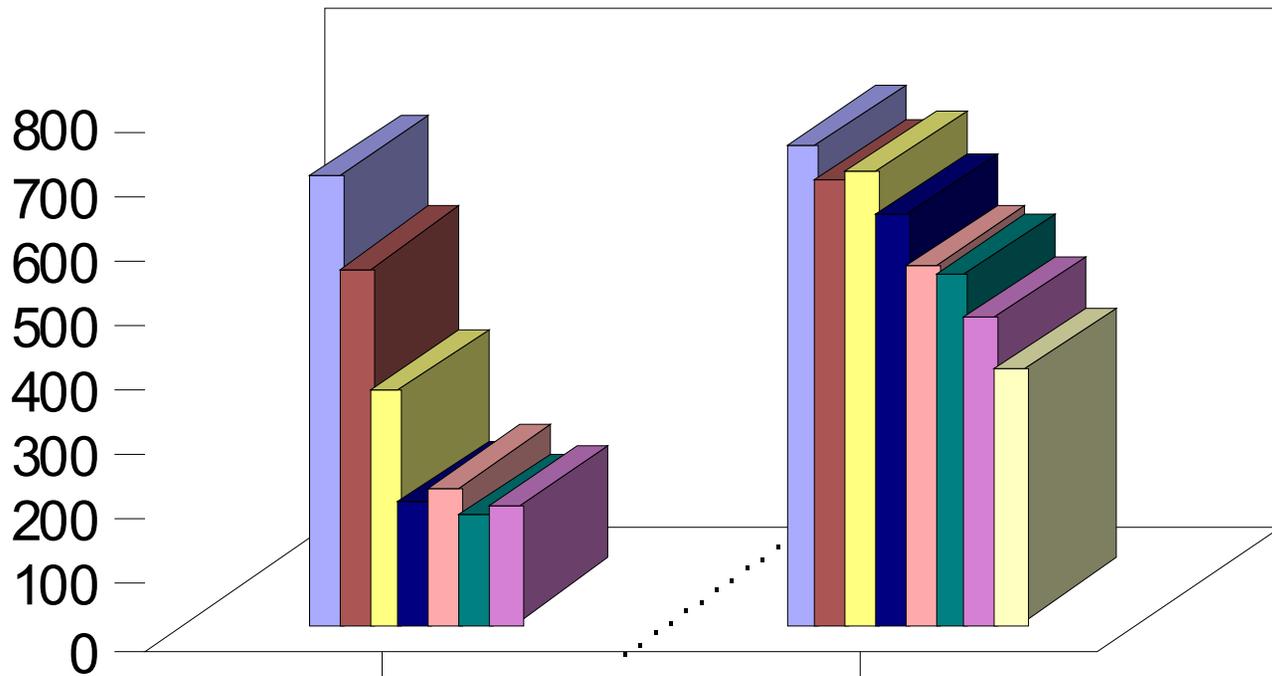
# Combination Benefits/TradeOffs

- If EPA Staff Do Audits: No ESAT Labor Costs
- If ESAT Staff Do Audits: Only EPA training, Oversight Time Needed
- Common Benefit: Expanded Resources, Can Do Both TSAs and PEs more easily
- 04:EPA R5,7-TTPonly;ESATR4,6,9-NPEP
- 05:6Labs do 9Regs.;Min.Mailed+TTPin 5R

# Mailed Program, Reductions

- Mailed Contractor Funded in 04'(all) and '05(partial mix) for Regions 1,2,3,8,9, and 10
- Provide in 04'&'05: Ozone, CO, SO<sub>2</sub>, NO/NO<sub>2</sub>, PM<sub>10</sub>, Lead; No PAMS, PSD
- 04/05 Buy-ins; TTP Certs. in '05
- Max # Mailed PE Devices Now Very Limited: 20→?15 O<sub>3</sub>, 5-6 CO/SO<sub>2</sub>/NO/NO<sub>2</sub>; 10 PM<sub>10</sub>
- 05: Approx \$215K for Mailed; app.\$315K for TTP
- Next Yr Funding? IMPT: S&L OK 103 use

## US SLAMS/PSD Ozone Monitors Audited by NPAP



Samplers Audited

Audits Requested



1998



1999



2000



2001



2002



2003



2004



2005

## US SLAMS/PSD OZONE Monitors Audited by NPAP (as of 3-24-05)

Year	No. of Samplers Audited/ No. Agencies (=Shipments)	No. of Audits Requested <sup>1</sup> / No. of Agencies Requesting
1998	<b>686/188</b>	<b>727/188</b>
1999	<b>542/184</b>	<b>674/201</b>
2000	<b>352/80</b>	<b>692/202</b>
2001	<b>183/55</b>	<b>623/164</b>
2002	<b>205/57</b>	<b>544/136</b>
2003	(137 mailed + 22 ttp) = <b>159/29</b>	<b>533/132</b>
2004	(54 mailed + 119 ttp) = <b>173/17</b>	<b>463/114</b>
2005	0/3	<b>386/102</b>

# Summary of Through the Probe Audits Scheduled for 2005

Region	O <sub>3</sub>	CO	SO <sub>2</sub>	NO <sub>2</sub>	Total Audits for each Region	\$\$=ESAT+EP A, K=1000
1	11	2	1	7	21	15
2	15	6	9	10	40	40+?5-10
3	9	8	9	7	33	15
4	18	5	5	6	34	40+3
5					24?	22+8
6	20	8	4	15	47 (+8T)	45
7	12*+30	4	1*+ 6	2*+5	15*+45	28+MOU 25
9	24	19	8	13	64	35
10	12	14 **7of 14 mailed	3	4	33	25
<b>Total Audits for all Regions</b>	<b>151?</b>	<b>66</b>	<b>46</b>	<b>69?</b>	<b>332?</b>	<b>?281(+54)+25</b>

**T = Tribes (paid for by tribes)**  
**\* TTP PE's already completed**  
**\*\* Mailed TTP**

# NPEP Summary

- Special Advantages:
  - Mobile: Timeliness, Tighter Accuracy, Troubleshooting
  - Mobile Lab Multi-functionality Designed in: Audits; Sampling Priorities; Certifications
  - Enhanced Equipment and labor, Regionally-Based, making it easier to do PEs and TSAs, and High Priority Sampling, Training, and Support for New Methods for S&Ls in Region
  - NPEP Flexibility with M+ TTP: Mailed can do inaccessible, 1-2 monitor sites, BOA or TTP; Mobile Lab can go in if Mailed indicates problem

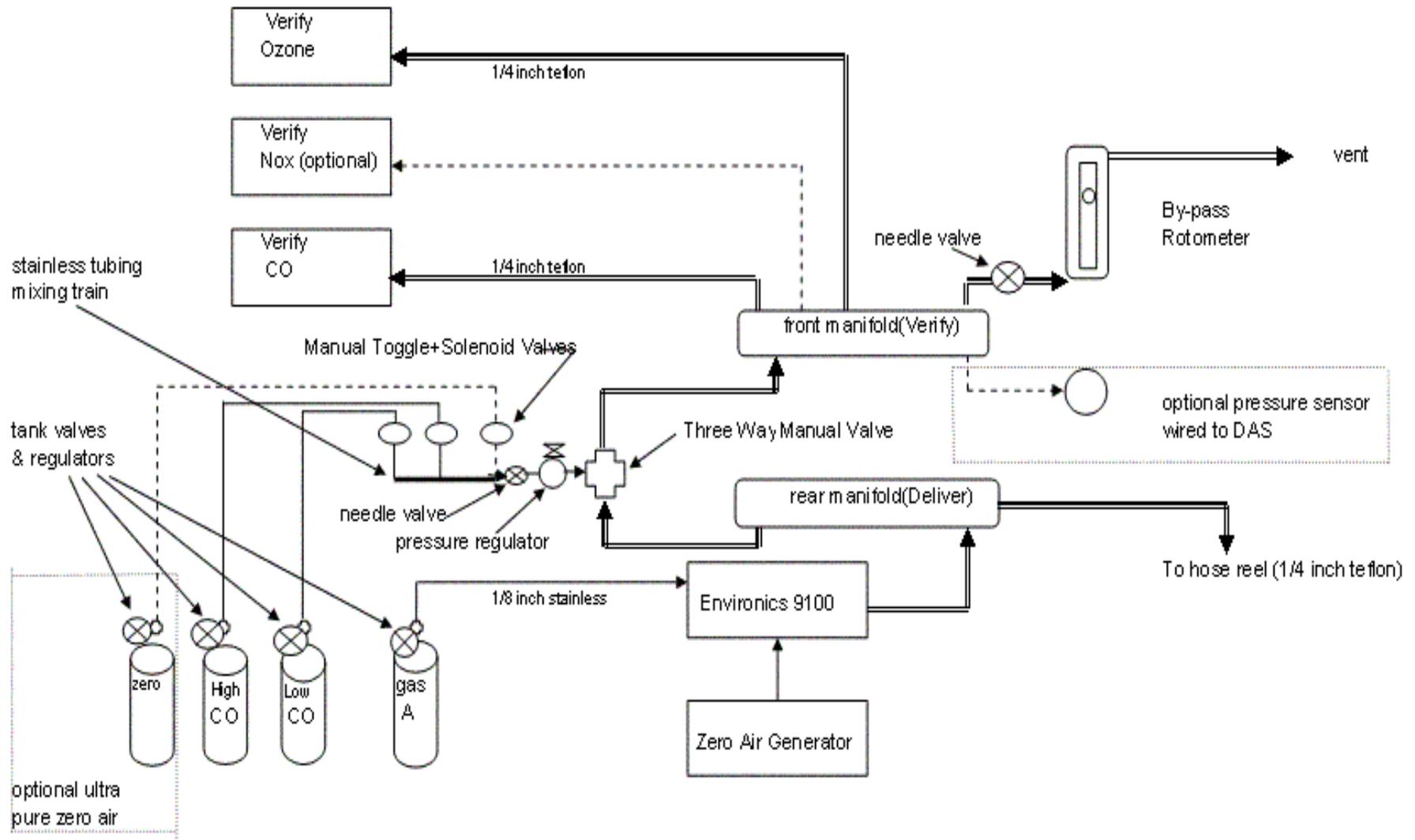
# NPEP Summary (cont'd.)

## Issues: Funding Future?

Urgent need to communicate pilot \$/PE, flex.

- To Convince S&L to Give 103/105 OK in '06
- Can't Rollover Replacement Cost Fund Using EPA Program Funds. EPA Program Funding much less certain than STAG
- Can Rollover with STAG 103 or 105 funds
- Hi Flow Stations, Portability; PG?, PAMS; Data Base System for Past NPAP and Future; PSD

# CAN 1 PERSON DO IT?



# Region 7 Mobile TTP Audit Lab



# Roof Platform+Sampling Mods.



# TEOM Mod +PC,etc.



# Interior Front, Sampling Mod.



# EPA/NIST SRP Network

- STATUS

- In Regions 1, 2, 4, 5, 6, 7, 8 and 9; 2 does 3, 9 does 10; a 2nd in 9 Reg.9Lab
- 2 originally set up for comparing the 8 Regional SRPS to NIST, 1 traveling, 1 stationary; 1<sup>st</sup> based in RTP; now in LV
- Range of Ages: 1<sup>st</sup> RTP, Done 2/83, last in KC, KS(R7)1/89
- NIST has 12 Worldwide, latest made this year

# EPA SRP Network Changes

- 2 hardware and software upgrades done, with 1 exception
- Feature Improvements: Change from all Manual operation to ability to automatically perform and record required documented procedure
- Benefits- Easier to certify multiple primary or transfer standards, more consistently, and with lower zero signal
- ORIA-LV Improved Trouble-shooting; Working on Grp OK to Std. Cert. Forms, Summary Rpts.

# NIST SRP Network Changes

- NIST Talk at June '04AWMA mtg-provided first documentation of international comparisons, including EPA network
- Plans in progress to have BIPM(France) Lead as European Center and for non-USA SRP support
- Cost of new SRP Rising (Approx. \$65K now); Revised Manual in Progress

# EPA Traceability Protocol

- On EPA TTN/EMC; for source and ambient levels, as of 98
- Presentation at this meeting
- ORD Verification Program stopped mid90s
- Users reporting problems; EPRI and EPA have done studies recently to assess problems
- Some Vendors have requested restart of Verification

# 3<sup>rd</sup> Party Verification

- Critical Features of ORD Audit Program
  - Low Cost
  - Very Low number of samples
  - Audit Sample Buying unknown to Vendor
  - Experienced Lab analysis; Vendors Coded
  - Process independent of vendors
  - RESULTS REPORTED TO PUBLIC
  - Documented Improvement in Tag Accuracy

# Bias Traceability Summary

- Programs are still active, changes occurring;  
Cited in Proposed 40 CFR Part 58 Revision
- Quality Data Requires both Continuation of Support and Change to keep up with Method and Data Priority changes
- Protocol Verification Success Indicates High sample numbers are not the only determinant of Effect:
  - Users and Vendors Respond to the Attention Brought by Open Bias Assessment