



OAQPS QA Program Update

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OAQPS AAMG QA Team



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- PM2.5 PEP
- Pb PEP

Trisha Curran

- NPAP
- SRP
- Air Toxics
- PAMS
- Data Certification

Doug Jager

- PM2.5 CSN
- PGVP
- Data Assessment

Colin Barrett

- AIRS Support
- Sensors

Greg Noah

- QA Budgets
- Technical Systems Audits
- NAAQS Pollutants
- Guidance and Regulations

A Humble Thanks...



To ALL of you involved in QA

- The past three years have been a test for with the COVID restrictions, remote work, and unpredictability of staff.
- We all have had to be innovative with our approach to getting the work done
- Thanks to your staff and the EPA staff and contractors for continuing to march forward and find ways to get the job done.

AA-PGVP Updates



Annual Survey System

- Historically difficult to get a high participation rate from SLTs
- Challenging to merge survey results with SLT data in AQS
- Working to migrate all functionality to AQS (phasing in through Aug 2023)
- AQS is ready to track cylinder metadata

NO₂ as EPA Protocol Gas Standards

- Stability Concerns for NO₂ (February Clarification Memo)
- ORD actively developing revised assay methodology so NO₂ can be designated as an EPA Protocol Gas standard
- EPA is working with NIST, VSL, BIPM, & specialty gas producers to expedite the development of new assay techniques for reactive standards like NO₂

AA-PGVP Updates

(continued)



Regional Assay Verification Labs (RAVL)

- Currently operating with only Region 7
- Spooling up capability in Region 4 to replace Region 2

NIST Standard Reference Materials (SRM)

- Many of the NIST SRMs we need for the AA-PGVP are currently out of stock at NIST
- AA-PGVP is not able to verify low concentration cylinder standards until this is resolved

CSN Updates



Working to Improve Flowrate Verifications Submissions to AQS

- Prior to 2015: <10% of CSN sites reported flowrate QC to AQS
- By 2016: reporting improved to ~20% of CSN sites
- 2017-2021: QC Data Completeness has plateaued:
 - URG: ~ 50% QC data completeness
 - SASS: ~ 35% QC data completeness

Updating of CSN Metadata needed

- Updating & reconciling metadata for “Sampler-ID” and “Channel #”
- AQS Fields for “Sampler-ID” and “Channel #” needed for loading flowrate verifications and associating field QC checks to analytes

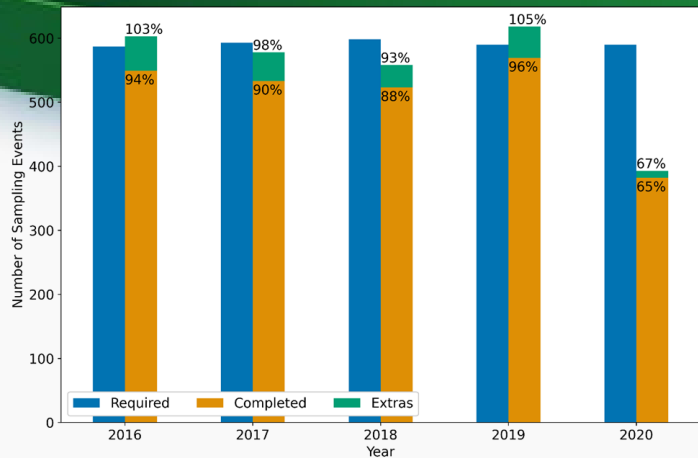
Completed AQS metadata corrections needed for AQS QA-collocation records

PM_{2.5} and Pb PEP - Background

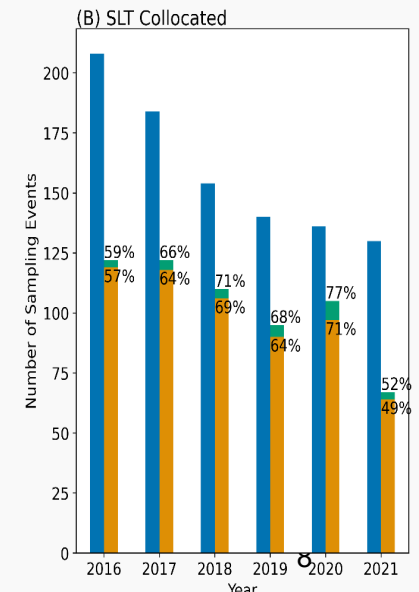
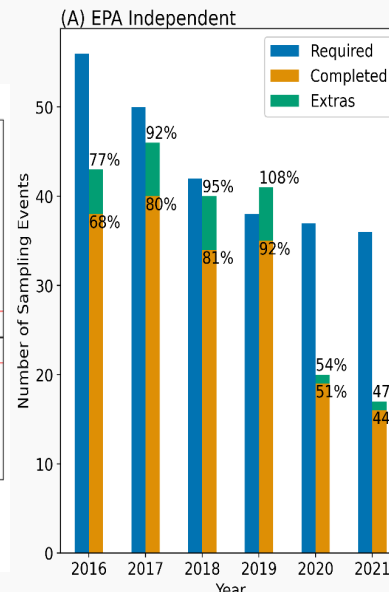
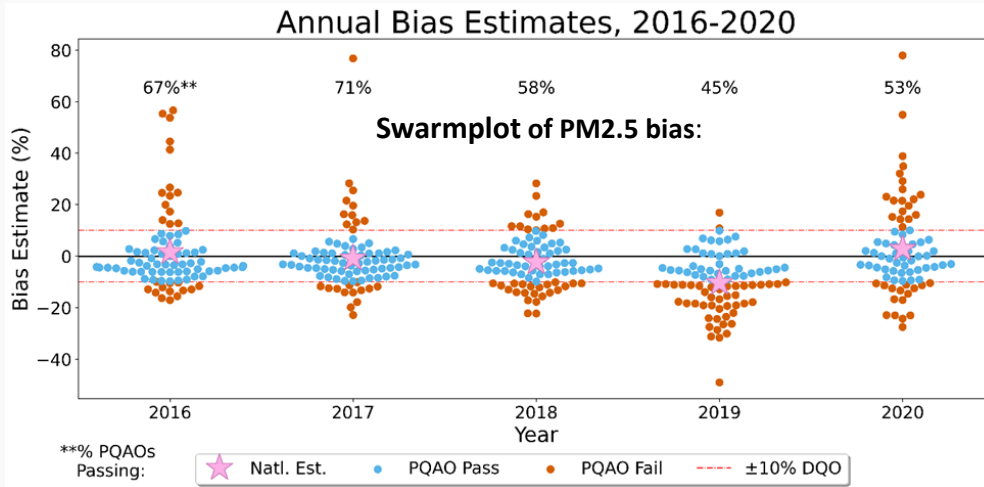
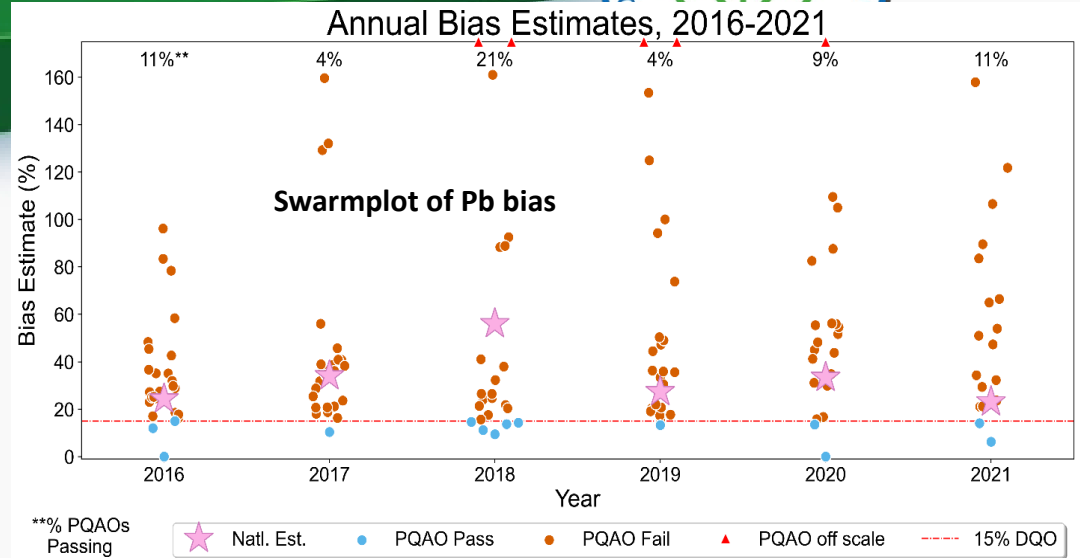


- 40 CFR Part 58 appendix A; Sections 2.4; 3.3.4; and 3.4.7
- Independent assessment of Network Bias (Pb is partially independent)
 - Collects 24-hour integrated filter samples of PM_{2.5} or Pb by:
 - PEP FRM Samplers collocated with Network Samplers
 - 5 samples annually if PQAO network is 5 sites or less; 8 samples if PQAO network is greater 5 sites.
 - Responsibility for Pb-PEP samples is shared with PQAO's collocated sites
 - 4 if network is 5 sites; 6 if more than five sites.
 - PM_{2.5} Concentrations must be $> 3\mu/m^3$ for AQS to include in bias assessment; Pb: $0.002 \mu g/m^3$
- 10 Regions, 4 SLT/PQAOs, and one Tribe are performing the Federal PM_{2.5} PEP measurements.
- 6 Regions and 2 SLT/PQAOs are performing (1 or 2) Federal Pb measurements per PQAO.

PM_{2.5} and Pb PEP - Status



Bar chart of PM_{2.5}-PEP Completeness, national level: This considers all PEP events completed, regardless of concentration level (i.e., 'invalid' sampling events in which concs < 3 ug/m³ are included here). Further, the green bar and percentages considers what we call 'extra' sampling events, which count PQAQO annual events exceeding the required 5 or 8.



EPA independent (A) and SLT Collocated (B). Note the impact COVID had on EPA and not SLT Collocated. Both completeness scores were low in 2021.

PM_{2.5} and Pb PEP - Improvements



- Replaced the PM_{2.5} PEP sampler fleet in 2020 (during the pandemic)
- Updated our PM_{2.5} PEP Field SOP 2021
- Revised our PM_{2.5} PEP QAPP signed May 2022; Pb-PEP QAPP in early 2023
- September 2021 Pb-PEP lab temporarily moved to Region 4 LSASD in Athens GA
- Revised Guidance for SLT Collocated Pb Site participation in PEP 2021 and 2022
- Made a systematic series of improvements to our AIRQA Website (available to all participating Regional and SLT PEP Coordinators, contract field scientists, and SLT field participants).
- By end of August updating the “Adequacy and Independence” guidance for Self-implementing SLTs
- By end of 2022 we’ll have two 6-year reports on all PEP and network precision results and associated QA data for the PM_{2.5} and Pb-PEP (2016-2021)

NPAP - Background



- 40 CFR Part 58 Appendix A Sections 2.5, 3.1.2.3, and 3.1.3
 - Performing audits of 20% of the monitoring sites per year and 100% every 6 years
 - Audit concentration gases are introduced to the probe inlet
 - Using audit gases that are verified against the NIST standard reference methods or special review procedures and validated annually for CO, SO₂ and NO₂, and at the beginning of each quarter of audits for O₃.
- Independent Assessment defined in 40 CFR Part 58 Appendix A Section 2.4.1 and 3.1.3.4
- NPAP Program Adequacy/Independence Criteria: Monitoring Rule Requirements and Implementing Instructions – July 2008
- 10 Regions and 1 SLT/PQAO are performing the Federal NPAPs.

NPAP - Status



- Sites Audited within 6 years (2016 - 2021): 6784 out of 7880 (86%)
- All Regional Offices were able to complete at least some audits in 2020 & 2021 (during the pandemic) – not a complete loss of NPAP QA

EPA NPAP Tracker

20% Yearly Network Completeness Met?
Average PQAO Completeness

	2016	2017	2018	2019	2020	2021
Region 1	33%	39%	33%	32%	42%	30%
Region 2	91%	68%	18%	54%	8%	0%
Region 3	20%	20%	27%	23%	15%	22%
Region 4	37%	35%	36%	40%	2%	36%
Region 5	41%	30%	29%	26%	18%	25%
Region 6	6%	41%	46%	50%	3%	2%
Region 7	49%	47%	30%	37%	40%	36%
Region 8	26%	30%	19%	30%	18%	16%
Region 9	20%	33%	31%	35%	22%	23%
Region 10	35%	32%	18%	15%	20%	8%

NPAP - Improvements



- NPAP and NATTS QAPP revised and approved – June 2021
- Update to the “Adequacy and Independence” guidance for self-implementing SLTs expected by end of August 2022.
- New PEAT version (PEAT 3.0.0.0) is in beta testing with some of our regional offices.
- Revised and approved NPAP SOP expected before the end of CY 2022
- Pd scrubbers for zero air expected to be distributed to all Regional Offices by end of September 2022



- NIST SRP has been in existence since 1983
- Proposed Upgrades
 - New updated SRP software coming soon
 - New electronic module
 - 4 new temperature sensors
- ISO Accreditation in Progress – will update QAPP and SOP
- Cross section
 - 1961 value of to 1.147×10^{-17} cm²/molecule (2.1% uncertainty) to 1.1329×10^{-17} cm²/molecule (0.31% uncertainty). New value is 1.23% lower.
 - Proposed implementation January 1, 2024
 - Guidance documents for various aspects such as flagging are being written
- The O₃ TAD is forthcoming
 - still conducting statistical analysis on the prediction interval

Air Toxics & PAMS



- Beginning to schedule NATTS & PAMS audits – several scheduled before end of CY22
- NATTS
 - Finalized [NATTS TAD Revision 4](#) finalized in July 2022
 - Webinars hosted on August 10 & August 16
 - [NATTS Workplan Template](#) finalized April 2022
 - Cleared back log of NATTS audit reports
 - Support contract with Battelle successfully rebid and awarded
- PAMS
 - [PAMS Model QAPP](#) finalized March 2021
- EtO
 - Conducting technical work on EtO
 - [EtO Technical Webinar \(4/15/21\)](#)
 - [Technical Note on EtO Canister Effect \(5/25/21\)](#)
 - [ORD EtO Canister Background Memo \(5/7/21\)](#)



Questions?