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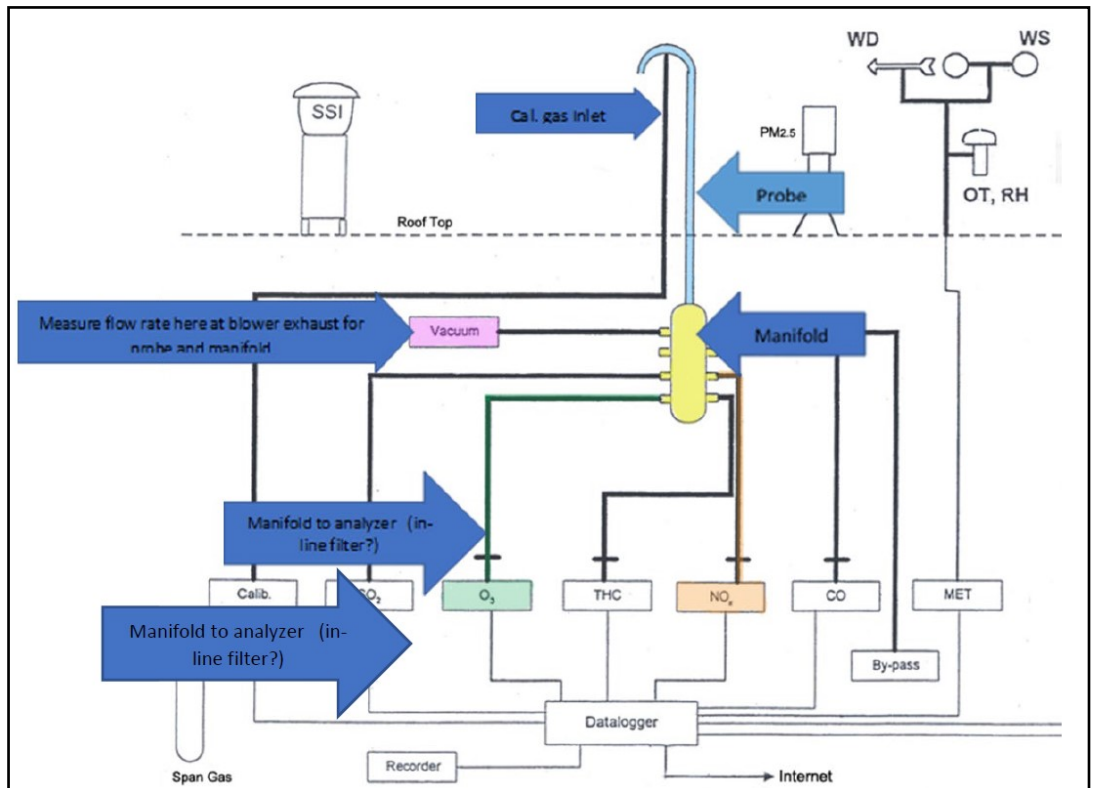
Residence Time Guidance

Some EPA Regional Offices and Air Monitoring Organizations have been interpreting the residence time language in the QA Handbook Volume II Section 7.3.1 differently. EPA has recently developed and posted new guidance on AMTIC to ensure residence time is calculated correctly and consistently. The guidance provides

additional information on how to determine and calculate residence time of air pollutants within the entire ambient air sampling system appropriately. The issue brought to light was that many sampling systems incorporate sections of different diameters, lengths, and flow rates to bring the air from the out-

side of the shelter to the analyzer, and these sections may have different residence times that must be added together to reflect the total residence time. The clarifications in this guidance mostly affects situations where a sampling system includes a manifold with a blower

Continued on Page 2.



Air Monitoring Diagram from “Technical Note-Clarifications and Guidance on Residence Time Determination; June 2019 (PDF)”.

Residence Time Guidance (continued from Page 1)

or vacuum and sample lines leading to the back of the instrument. The clarifications and guidance are effective **immediately**. Please review this guidance carefully as you assess residence time for monitors in your networks. If you have any questions, please feel free to contact your EPA Regional Office. The guidance, [“Technical Note-Clarifications and Guidance on Residence Time Determination; June 2019 \(PDF\)”](#), and the spreadsheet, [“Residence Time Determination Worksheet; June 2019 \(XLS\)”](#), can be found at in the list of [Quality Assurance Guidance Documents on AMTIC](#). A **BIG** thanks to Bob Judge and Peter Kahn from Region 1 for leading this effort and developing the guidance.

—Greg Noah/Trisha Curran

PROBE RESIDENCE TIME - Multiple Diameters													
Site Name: _____			Auditors: _____			Date: _____							
Booster pump flow = _____ LPM			Pollutant _____										
Material	Probe		Manifold		Manifold to Instrument			Manifold to Instrument			Manifold to Instrument		
	Teflon	Glass	Teflon	Glass	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	
ID (mm)	_____		_____		T1	T2	T3	T1	T2	T3	T1	T2	T3
Length (m)	_____		_____										
Flow (lpm)	_____		_____										
Time	_____		_____										
Total Residence Time = _____													

Residence Time Calculation =	$\frac{3.14(ID^2) \times LENGTH \times 0.015}{FLOW}$	=	$\frac{3.14 \times radius^2 (mm) \times LENGTH (m) \times 60 (sec/min)}{FLOW (lpm) \times 1000}$
Multiple Tubing Diameters Calculation* <small>*used for entry into the Audit Information System, where different diameters of tubing are present</small>	= (tubing_2 I.D./tubing_1 I.D.) ² * tubing_2 length + (tubing_3 I.D./tubing_1 I.D.) ² * tubing_3 length + tubing_1 length		

Common Sample Line Diameters										Manifolds			
Outside Diameter (in.)	1/8"	3/16"	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	1/2"	1/2"	O.D. (in.)	1.25"	2.0"
Wall Thickness (in.)	.030"	.030"	.030"	.062"	.030"	.062"	.030"	.062"	.030"	.062"	W.T. (in.)	.25"	.25"
Inside Diameter (mm)	1.6	3.2	4.8	3.2	6.4	4.8	7.9	6.4	11.1	9.5	I.D. (mm)	25.4	44.5
<small>*"thin wall" is typically = 0.030", while "thick wall" is typically = 0.062"</small>											Length (m)	0.25	0.30

Data recorded and verified by: _____

California Air Resources Board (CARB) Example Spreadsheet from [“Technical Note-Clarifications and Guidance on Residence Time Determination; June 2019 \(PDF\)”](#).

Use of “1C” Null Codes

Some agencies have been using the “1C” as a null code for raw data (sample measurements). It should only be used to null 1-point QC data. The 1C code means “A 1-Point QC check exceeds acceptance criteria but there is compelling evidence that the analyzer data is valid.” Any agencies using the “1C” code for raw data need to immediately discontinue this practice. For older raw data where a 1C code was used, either the data values need to be re-submitted along with compelling evidence of validity or a different, more appropriate null code needs to be chosen. If the 1-point QC check was truly invalid when the raw data was collected the “1C” needs to be

added to the QA/QC data. Any changes made to the raw data would require a data re-certification to be submitted for the appropriate years. We are in the process of working with the AQS Team to prevent the use of the 1C flag for raw data. For more information about the “1C” code please see the [“Steps to Qualify or Validate Data after an Exceedance of Critical Criteria Checks \(PDF\)”](#) found on the [AMTIC Policy and Memoranda Technical Guidance website](#). More information was also provided in previous QA EYE issues.

—Trisha Curran

AQS QC Data Summary

EPA has come up with a quick summary for gaseous and PM monitors when flagging QC data with "1C". At present, we still do not have an equivalent flag or process for PM data. For examples and more detailed explanations of the information below, please refer to the 2018 ["Steps to Qualify or Validate Data after an Exceedance of Critical Criteria Checks \(PDF\)" Memo](#) which can be found on the [AMTIC Policy and Memoranda Technical Guidance website](#). It also includes the definition of valid and invalid QC checks. This memo was also discussed in QA EYE Issues 22 and 23.

Gaseous:

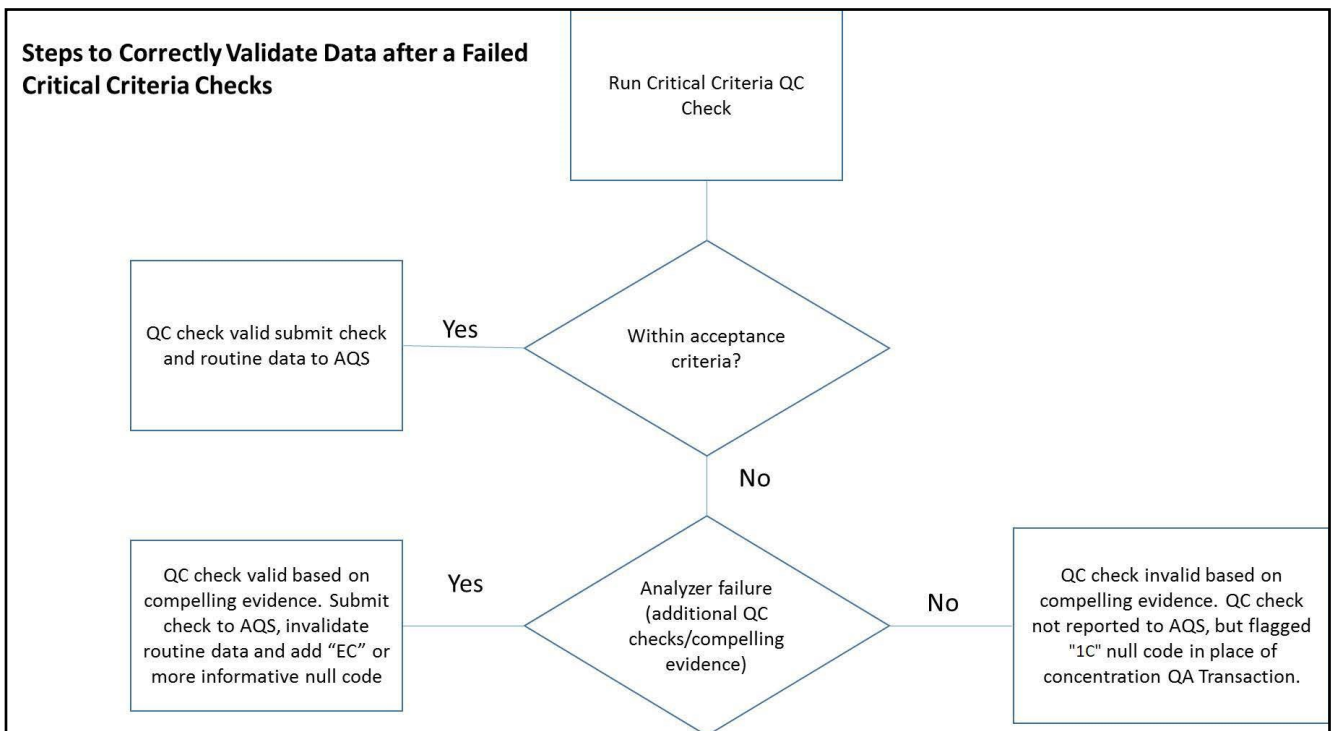
- Valid QC and Valid data: Report the QC to AQS and it will be counted towards completeness and statistics of precision and bias.
- Valid QC and Invalid data: Report the QC to AQS it will be counted towards completeness but will not be used for statistics of precision and bias. Please see attached memo Scenario 1 for more details on how to proceed.

- Invalid QC and Valid data (only considered valid with **compelling** evidence and agreed to by the EPA Regional Office): Do not report the QC to AQS it should be replaced with "1C". It will be counted towards completeness but will not be used for statistics of precision and bias. Please see attached memo Scenario 2 for more details on how to proceed and documentation of compelling evidence for data validity.
- Invalid QC and Invalid data: Do not report the QC to AQS it should be replaced with "1C". It will be counted towards completeness but will not be used for statistics of precision and bias.

PM:

- Invalid QC: Do not report the QC to AQS.
- Valid QC & Invalid data: Report the QC to AQS.

- Trisha Curran



Flow Diagram from ["Steps to Qualify or Validate Data after an Exceedance of Critical Criteria Checks \(PDF\)"](#).

Accepted 1-Point QC Check Concentration Ranges in AQS

The 1-point QC ranges identified in AQS as valid was effective January 1, 2019.

The National Air Data Group initially implemented this change around July 2018. Due to a few complaints, we decided to wait until the 2019 CY for full implementation. It is important to note that beginning on January 1, 2019, not only would implementation of this potentially affect regulatory precision and bias statistics, but it could also affect precision check completeness, resulting in the AMP600 recommending that certain monitors not pass “certification evaluation” criteria.

In July 2018, the valid ranges for Assessment Concentrations for 1-Point QC transactions were updated in AQS to reflect the 2016 changes to 40 CFR Part 58 Appendix A Section 3.1.1. If a 1-Point QC transaction is submitted with the assessment concentration (not monitor value) outside the valid ranges, it will be accepted with a warning, but will not be used in regulatory precision and bias statistics or count towards meeting the required frequency. This means the data will not show up on AMP reports such as the Data Quality Indicator Report (AMP256) and the Certification Evaluation Report (AMP600). A new column, “Validity”, has been added to the Raw QA Assessment

Report (AMP251) to show if the concentration is in the required range (‘Y’) or not (‘N’). An assessment value that is within the range with the monitor value outside the range (since one can’t determine what the monitor will measure) will be used.

The valid ranges are:

Ozone: 0.005 – 0.080 PPM
 SO2: 5.0 – 80.0 PPB or
 0.005—0.08 PPM
 NO2: 5.0 – 80.0 PPB or
 0.005—0.08 PPM
 CO: 0.5 – 5.0 PPM

To assess in AQS whether checks were conducted within the required range, values are rounded to the following number of digits after the decimal for the Assessment value, after it has been converted to the standard units for the parameter:

- O3: Std Units: PPM, Rounded to Number of digits after decimal: 3
- SO2: Std Units: PPB, Rounded to Number of digits after decimal: 0
- NO2: Std Units: PPB, Rounded to Number of digits after decimal: 0
- CO: Std Units: PPM, Rounded to Number of digits after decimal: 1. More details were provided in QA EYE Issue 23.

This rounding is only used to determine if the assessment value is within the correct range. For the statistical assessments, the values reported in the QA transaction

will be used.

There have been questions regarding the 1-pt QCs at the NCore sites, which have trace monitors. 40 CFR Part 58 Appendix A 3.1.1 states, “If monitoring at an NCore site or for trace level monitoring, the QC check concentration should be selected to represent the mean or median concentrations at the site. If the mean or median concentrations at trace gas sites are below the MDL of the instrument the agency can select the lowest concentration in the prescribed range that can be practically achieved. If the mean or median concentrations at trace gas sites are above the prescribed range the agency can select the highest concentration in the prescribed range.” This may mean that for CO the mean or median concentrations may not be within the accepted ranges in AQS. However, the CFR also states, “An additional QC check point is encouraged for those organizations that may have occasional high values or would like to confirm the monitors’ linearity at the higher end of the operational range or around NAAQS concentrations. If monitoring for NAAQS decisions, the QC concentration can be selected at a higher concentration within the prescribed range but should also consider precision points around mean or median monitor concentrations.”

Continued on Page 5.

Accepted 1-Point QC Check Concentration Ranges in AQS (continued from Page 4)

We acknowledged that most NCore trace level CO data is in a range of 150 – 300 ppb (0.150 – 0.300 ppm). Despite these low numbers and even with no non-attainment areas we still use the CO data to show attainment of the CO NAAQS. Therefore, it is intended that a precision check is run at a low point of 500 ppb (0.5 ppm). We suggest that you stay consistent with the regulatory requirements and perform a check minimally at 500 ppb. We recommend running a second lower QC check that represents your mean or median measured concentrations. If more than one QC check is run and any of them fail, the data will need to be examined to determine if invalidation is necessary. In addition, the Annual PE audit can be conducted at lower audit levels and this is a second way of gathering information on precision and bias at lower con-

centrations. This information was Question #10 during the AQS [“Ask the Experts” webinar hosted in November 2018.](#)

Again, more detailed information with examples was provided in QA EYE Issue 23: “Fair Warning #1 1-Point QC Check Concentration Ranges”, page 4. It was also information that was included in Chris Chapman’s presentation “AQS Status and Plans” at the 2018 National Ambient Air Monitoring Conference in Portland, Oregon, in August 2018. Also, please see the AQS RSS Feeds for the information regarding notices about the AQS changes in June/July of 2018 and for the “Ask the Experts” webinar hosted in November 2018.

-Greg Noah/Nealson Watkins/
Trisha Curran

Zero/Span AQS Submittals

As you know, one of the action items in response to the past IG investigation involving ozone was to modify AQS to allow the submission of zero and span transactions. AQS has been modified, and will currently accept zero and span transactions for not only ozone but for all gaseous pollutants. OAQPS encourages monitoring agencies to complete zero and span checks, as required by their QAPPs, and make these data available for review in AQS to support technical systems audits. **Reporting zero and span**

checks to AQS is not a regulatory requirement; however, OAQPS asks the monitoring organizations to voluntarily submit these data to AQS. The QA transaction allows for the reporting of “monitor” zero values, the zero measured by the station analyzer, but not the “assessment” zero values. AQS assumes the zero “assessment” value is zero.

-Greg Noah

NPAP/PEP Memorandum

The NPAP/PEP 2020 decision memo (self-implementation memo) was e-mailed to the regional office contacts on Tuesday, August 13th. Attachment 2 of the memo needs to be completed and submitted to your regional office. It identifies whether an agency is planning to self-implement the NPAP or PEP program or opting into federal implementation. Please note that we are asking for a full response for PEP to give us an accurate count of the PQAOs and their corresponding site counts. For NPAP you only need to provide responses of SLT/PQAO changes that result in changes to the number of NPAP audits. Of interest are any low volume PM₁₀-Pb sites still planned for use as design value monitors for Pb NAAQS. We will have the memo posted to the AMTIC site as soon as possible. If you have not

received this memo for your PQAO please contact Dennis Crumpler at OAQPS.

If your State, Local, or Tribe plans to self-implement, details regarding the independence and adequacy requirements for these programs are found on the [AMTIC National Performance Evaluation Program guidance documents](#) website. Updated documents for the PEP program are expected to be posted to AMTIC soon. An agency must demonstrate compliance with these requirements in order to be approved for self-implementation. Attachment 1 of the memo provides the highlights of this guidance and estimates of annual costs broken down by Region and Program.

2019 NPAP/PEP Training

On September 30th through October 4th in Athens, Georgia, OAQPS conducted the annual PEP and NPAP training for PEP and NPAP auditors and regional leads. During the PEP session, Dennis Crumpler and Ryan Stokes demonstrated the new MoPED application and the new AQS forms that will serve as the new platform for operating the PEP program. By using MoPED and AQS, many elements of the PEP program will be automated and streamlined including data transfer and validation. More automation means more checks on the data and quicker upload to AQS, which will make the audit process much less cumbersome to the auditor and the regional lead. Implementation of this new process is expected to be early summer 2020. During the NPAP session, Greg Noah presented several

NPAP data assessments, reviewed the program's progress over the past year, and facilitated several discussions on NPAP changes over the next few years. The NPAP session was highlighted by three break-out sessions that involved small group discussions and hands-on instruction with some of the NPAP equipment.

The event was well attended, and there was excellent feedback regarding the content and presentation. A big thanks goes out to Mike Crowe and his ESAT contractors in Region 4 for providing the rooms and technical equipment that made the training session a success. We appreciate you, Mike!

-Greg Noah

Data Certification Clarifications

Certifications need to be submitted in accordance with the requirements of 40 CFR Part 58.15 and in the format requested by the EPA Regional Office.

The current data certification guidance and questions and answers document can be found on the [AMTIC Data Certification/Validation website](#).

If collected by an FRM, FEM, or ARM at a SLAMS or SPM site meeting Appendix A of 40 CFR Part 58, the data needs to be certified to comply with the CFR. If a SLT is reporting the data to AQS there should be a data review process, which the certification helps to prompt. Therefore, certification of PM_{10-2.5} and 5-min SO₂

data is still required since they are collected by FRM, FEM, and ARMs meeting the CFR requirements.

EPA does **NOT** certify data. An agency, who is designated as the certifying agency and places certification flags in AQS, submits the annual data certification package. The data is certified when the certifying agency submits this package with the required signed letter and reports.

An “N” or “Y” certification flag entered into AQS by the certifying agency indicates that the year’s data for a particular monitor is being certified. An “N” flag does not mean the data is not

certified. It indicates that caution is needed when using the data since it may not meet certain requirements, like data completeness or QA/QC requirements. See the meanings of data certification flags below, in certification flags on the [AQS Code List website](#), or in the documents located on the [AMTIC Data Certification/Validation website](#).

When certifications are submitted EPA may not necessarily perform a rigorous review of the certified data. This should have been performed by the certifying agency

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Certification Flag ▲	Certification Status
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR 58.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter; the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

Certification Flags and Meanings from “Certification Flags” on the AQS site at https://aqs.epa.gov/aqsweb/documents/codetables/certification_flags.html.

Data Certification Clarifications *(continued from Page 7)*

throughout the year and prior to the data certification submittal. EPA may only perform a cursory review of the information provided in the data certification package and in AQS before placing the EPA evaluation flag. More thorough reviews may be performed by EPA during the certification process, during TSAs, or during other data review periods.

Please be aware that if an EPA evaluation flag is entered in AQS for data certifications it cannot be changed back to an "S" flag unless

the certifying agency submits a recertification for changes to the data. If an "S" flag is mistakenly changed and needs to revert back, please contact the EPA Helpdesk or AQSTeam. We are working on having this changed in AQS.

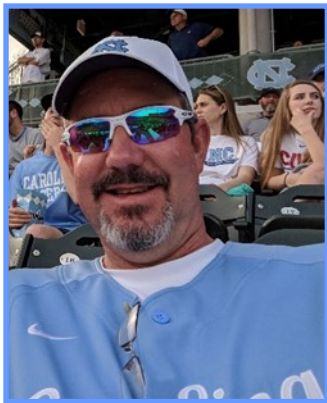
Overall, it has been noted that the AMP600 and evaluation of certification flags has created a starting point for dialog on data quality between the monitoring agencies and EPA, which occurs proactively prior to the EPA evaluation flags.

As always, we encourage all monitoring agencies to openly communicate about the data with the Regional Offices. We know that data quality is everyone's #1 priority! The certification process has also resulted in closer review of raw data and QA/QC data. We have noticed an overall improvement in the data collection and QA/QC performance. So, thank you all for all the work you do and the improvements you make every day. It has been noticed!

-Trisha Curran

New Ambient Air Monitoring Group QA Team Lead

When Mike Papp retired (WE MISS YOU MIKE!) we had a big burden to shoulder. As a result, Dennis Crumpler and Greg Noah stepped up as rotating QA Team Leads for six months. Their willingness to take on those responsibilities as well as their routine work helped the QA air programs to keep moving forward. They did a terrific job! Thank you BOTH!



Fortunately, the new Mike Papp has been announced. Greg Noah has been asked, and has generously accepted, the role as QA Team Lead. Greg was first introduced to the OAQPS group as one of the first Environmental Services Assistance Team (ESAT) field scientists trained for the PM_{2.5} PEP

back in 1999 (YES 1999) and for the gaseous NPAP. He was an EPA Region 4 employee in the Science Ecosystem Support Division and later joined OAQPS in February 2013. He has helped with guidance docu-

ments such as the QA Handbook, TSA Guidance Document, and NPAP/PEP QAPPs and SOPs. He has had many duties supporting the AAMG QA team over the years including:

- Pb-PEP QA Lead
- NATTS QA Lead
- NPAP Lead
- PM_{2.5} Weighing Labs Technical Lead
- Technical Systems Audits
- LEAN re-engineering of NPAP and PEP

Please join us in sharing our congratulations to Greg. We are looking forward to all the stellar QA work we will be able to accomplish with him in charge of our QA Team. CONGRATULATIONS GREG (a.k.a. Gregorio of Qualitus Maximus)!

-Trisha Curran



New OAQPS Staff

The Ambient Air Monitoring Group is going through several staff changes, including 3-month temporary rotating group leads, or actings, over the coming year. As of October 14th, the the Ambient Air Monitoring Group's new acting lead kicked off with Chris Owen. The order of actings will be Chris Owen, Kristen Benedict, Rochelle Boyd, and Angie Shatas. Lew Weinstock will continue his work on Air Toxics issues in the Air Quality Assessment Division Front Office. Liz Naess has returned as the Air Quality Analysis Group Leader.

We have also been fortunate to add several new staff members. We would like everyone to join us in welcoming Melinda Beaver, Ryan Stokes, and Trisha Curran to OAQPS's Ambient Air Monitoring Group (AAMG).

Melinda is a North Carolina native who earned her B.S. from UNC-Asheville, and a Ph.D. in Chemistry from the

University of Colorado. Prior to joining AAMG in July 2019, Melinda worked on the regional haze program in another OAQPS division. She is currently working with Joann Rice on the Chemical Speciation Network (CSN). Melinda is excited to be involved in ambient monitoring and is looking forward to working with you all on speciation efforts.

Ryan has a degree in Biological System Engineering from Ohio State University. Previously, Ryan was an aerosol engineer with Jacobs, operating under the EPA Research Laboratory Support contract in RTP. His work was generally supported by ORD's National Homeland Security Research Center, Decontamination and Consequence Management Division focusing on chemical, biological, and inert aerosol fate and transport. Before Jacobs, Ryan performed similar duties at Battelle Memorial Institute providing mission support for DOD and DHS. He joined the

Ambient Air monitoring Group Quality Assurance Team in April and will be serving the PM_{2.5} Chemical Speciation Network, PM_{2.5} PEP, and Pb PEP programs.

Trisha earned her B.S. in Chemistry and B.S. in Chemical Engineering from Texas A&M University-Kingsville. Previously, she worked in the Ambient Air Monitoring and Grants Section at the Region 6 Office in Dallas, TX. She moved to RTP, NC, in March and has been involved with the Quality Assurance Team working on the NPAP program, the Standard Reference Photometer (SRP) for O₃ measurements, and Sensors. Trisha is excited to continue working in ambient monitoring quality assurance with the EPA Regional Offices and monitoring agencies.

Their experiences will make Melinda, Ryan, and Trisha valuable members of AAMG. Welcome aboard!

Proposal to Extend Start Dates for Required PAMS

EPA is proposing to revise the start date for the required Photochemical Assessment Monitoring Stations (PAMS) sites established in 40 CFR Part 58, Appendix D. This proposed revision would extend the start date from June 1, 2019, to June 1, 2021. This extension is being made to give states more time to acquire the necessary equipment and expertise needed to successfully

make the required PAMS measurements by the start of the 2021 PAMS season. Comments needed to be received on or before July 1, 2019. More information can be found on the [AMTIC Monitoring Regulations website](#).

-Kevin Cavender

Changes in AAMG’s QA Team Roles

The OAQPS AAMG QA team is undergoing some big changes. With the retirement of Mike Papp, Jenia McBrian’s move to the OAQPS QA manager role, and the addition of Trisha Curran and Ryan Stokes, the QA team looks a lot different than it has over the last couple of years. Because of the changes in staffing, the QA team has been busy reinventing itself and redistributing programs and responsibilities. One of the major goals of the group is to distribute the work more efficiently and train the new staff to transition into leadership roles in our required QA programs. It will take time, but our hope is that we will broaden our knowledge base, overlap skills and abilities,

and be able to provide better support to all our partners and stakeholders. Here is a snapshot of what we expect the team, and their responsibilities, to look like long-term.

We plan on spending more time in the coming months to explore and develop a plan to incorporate other QA interests where there are needs such as training, data assessments, and new FEM monitoring method QA needs. We’re all very excited moving forward, and we hope to keep moving QA forward!

-Greg Noah

QA Program	Lead (Future Lead)
Team Lead/Regional POC/CFR/Guidance/OIG	Noah
Criteria Pollutants	QA Team
Air Toxics	Noah
PAMS	Noah
PM _{2.5} Chemical Speciation Network Program	McBrian (Stokes)
IMPROVE	McBrian (Stokes)
Sensors/New Technology	Curran
Technical System Audits (TSAs)	Noah
Annual Reporting (annual reports from QA)	Noah
National Performance Audit Program (NPAP)	Noah (Curran)
PM _{2.5} Performance Evaluation Program (PEP)	Crumpler
Pb Performance Evaluation Program (Pb PEP)	Crumpler
Protocol Gas Verification Program (PGVP)	Ricks
Standard Reference Program (SRP)	Curran
Data Certification/AMP 600	Curran
PM _{2.5} Chemical Speciation Network Performance Evaluation (MegaPE)	Stokes
PM _{2.5} Gravimetric Laboratory Round Robin	TBD

Updated List of Reference and Equivalent Methods

An updated [list of designated reference and equivalent methods](#) was posted August 1, 2019, on the [AMTIC Air Monitoring Methods-Criteria Pollutants website](#). These methods for measuring ambient concentrations of specified air pollutants have been designated as "reference methods" or "equivalent methods" in accordance with Title 40, Part 53 of the Code of Federal Regulations (40 CFR Part 53). This list is revised as necessary to reflect any new designations, modifications of existing designations, or any cancellation of a designation currently in effect. The table below identifies the most recent designations and modifications of existing designations identified in the updated list.

-Trisha Curran

Most Recent Designations				
Designation Number	Applicant	Instrument Series	Summary of Designation	Effective Date
EQOA-0219-251	KENTEK Inc.	MEZUS 410 O ₃ FEM Analyzer	New designation of UV photometric O ₃ FEM.	February, 2019
RFCA-0419-252	Focused Photonics Inc.	Model AQMS-400 CO FRM Analyzer	New designation of NDIR CO FRM.	May, 2019
Most Recent Modifications of Existing Designations				
Designation Number	Applicant	Instrument Series	Summary of Modification	Effective Date
RFPS-0714-216 RFPS-1014-219	Tisch Environmental	Models TE-Wilbur10 PM ₁₀ FRM Sampler, TE-Wilbur2.5 PM _{2.5} FRM Sampler	Firmware update to version 3.52, corrects potential duplicate datalogging error during 5-min operation mode.	February, 2019
RFCA-0317-244	KENTEK Inc.	Model MEZUS 310 FRM CO Analyzer	Updated manufacturer name.	February, 2019
RFPS-0714-216 RFPS-1014-219	Tisch Environmental	Models TE-Wilbur10 PM ₁₀ FRM Sampler, TE-Wilbur2.5 PM _{2.5} FRM Sampler	Updates firmware version 3.52 to correct filter temperature differential calculation.	March, 2019
RFPS-0714-216 RFPS-1014-219	Tisch Environmental	Models TE-Wilbur10 PM ₁₀ FRM Sampler, TE-Wilbur2.5 PM _{2.5} FRM Sampler	Hardware update to PLC system due to discontinuation of current components. Firmware update to version 4.00, addresses hardware modification and adds ethernet port for Modbus communication and email alert feature.	May, 2019
EQOA-0880-047	Thermo Environmental	Model 49i O ₃ FEM Analyzer	Updated to newer model photometer.	May, 2019
RFPS-0717-246	MetOne Instruments	Model E-SEQ-FRM PM ₁₀ Sampler	Provides corrected designation description.	August, 2019

Changes in the list of designated reference and equivalent methods from ["List of Designated Reference and Equivalent Methods \(PDF\)"](#).

Spotlight: Region 3

Since there have been turnovers, re-alignments, and retirements, we thought it would be a good to make sure we all know our regional counterparts. So, we are planning to feature at least one regional office in each newsletter. We want to shine a light on the remarkable work you do or the amazing people you work with. Region 3 has generously volunteered to be our first feature. If you would like your region to be hosted in the next newsletter please contact Trisha Curran.



Name: Alice Chow
Position/Job Title: Branch Chief, Air Quality Analysis Branch
Responsibilities: Manage air monitoring, modeling, emissions inventories, AQS, toxics, QA, exceptional events,

and special projects.

Most memorable work memory: A Minion was taken by staff on a TSA in West Virginia. He had photos to prove it.

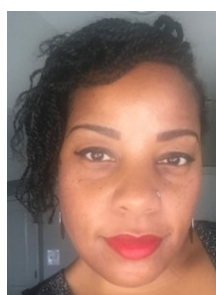
Name: Elizabeth Gaige
Position/Job Title: Physical scientist

Responsibilities: SO₂ data and design values, SO₂ data requirements rule implementation, annual monitoring network plans, TSAs.

Most memorable work memory: Big three TSAs (Pennsylvania, Virginia and Maryland) in the summer of 2015 – my first summer in the monitoring group.



Name: Howard Schmidt
Position/Job Title: Environmental Scientist
Responsibilities: Toxics, Pb, NO₂, Modeling
Most memorable work memory: Winning a national award



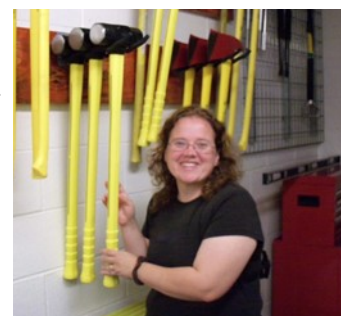
Name: Kia Long
Position/Job Title: Physical Scientist
Responsibilities: QA Coordinator, TSAs, Exceptional Event Review, Office Goofball and Party Starter
Most memorable work

memory: Many memorable, crazy, scary and funny moments, especially on TSAs. From being an accessory in our Branch Chief's Minion kidnapping; climbing up R3's dangerous hatch roof ladder and almost needing the Fire department to get me down; an impromptu photo shoot at *Cabella's*; to the over 50,000 calories deliciously consumed with our SLT counterparts.

Name: Lori Hyden
Position/Job Title: Environmental Engineer

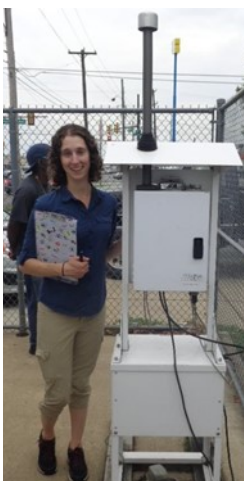
Responsibilities: Oversight of PM, O₃, CO, and the PAMS programs. TSAs. NPAP/PEP technical COR. Assists with special projects.

Most memorable work memory: Various TSA road trips that included snakes, long drives, wasps, getting stuck on a roof, and a bear.



Continued on Page 13.

Spotlight: Region 3 (continued from Page 12)



Name: Verena Joerger
Position/Job Title: Physical Scientist/QA Coordinator
Responsibilities: QA Regional contact, QAPPs, TSAs, ELMS branch activities, compile and monitor data submissions from SH Bell Consent Decree, assist with special monitoring projects.

Most memorable work memory: In 2017, Kia, Elizabeth and I wrote and performed a skit for a R3 series called “Divisions Decoded”. Every division had to put on a fair of sorts with different stations that described the work done in the offices of that division. Kia and I decided we couldn’t have an ordinary station or activity, so we wrote and performed a skit called “Anger Management” that Elizabeth narrated. I played a

therapist that Kia was seeing after a particularly difficult TSA. It was over the top and garnered a lot of laughs from the audience.



Kia Long, Verena Joerger, and Elizabeth Gaige on a TSA in Virginia. As you can tell, we have a fun group in Region 3!

Things in the Pipeline

New Network Affiliation

“Susceptible and Vulnerable Populations for **NO₂**” will be a new option for Network Affiliation for monitors in AQS. And just in case you couldn’t guess; **YES**, this should only be applied to NO₂ monitors.

Flow Transfer Standard

We are still trying to find time to complete a guidance document for flow rate transfer standards. This was discussed in prior issues. We are aiming to have a draft of this document out by Summer 2020.

NPAP QAPP

The revision of the NPAP QAPP has been going on for a while but has finally been completed. It was sent out for signatures. Once we receive all the needed signatures, it will be posted on AMTIC. So, keep an eye out!

R-Shiny QC Tool

Sonoma Technology Inc. has been working on an automated report to evaluate the 1-pt QC checks in AQS. This report had been delayed due to contracting issues and revisions associated with moving AQS data to the Datamart. We hope to have an-

other version of the report ready for review by early 2020.

APTI-470

Development of the web-based APTI-470 is still in progress and being actively labored over (mostly by Stephanie McCarthy). We know there has been considerable interest, so we are hoping to have them finalized and posted by the end of the year. A BIG THANKS to Stephanie for her dedication and hard work to keep it progressing. We know it, but we want to make sure everyone knows it too!

Continued on Page 14.

Things in the Pipeline (*continued from Page 13*)

PEP Program Update

As mentioned previously in the PEP/NPAP Training Section, this year's event involved a hands-on session with the new software, MoPED, and intensive instruction guiding the auditors through the new PEP process. MoPED is a field data collection and transfer application for tablet computers that pulls and posts information to AQS. New weighing laboratory software will also be installed which integrates with AQS uploading filter weighing data. Behind the scenes, AQS will combine the two data streams and calculate the final audit concentration while providing supporting data for validation. This compilation of field and laboratory data will be available on AQS for the regional PEP leads to validate before it moves into AQS. Finally, AQS will generate PEP versus monitoring organization comparisons as routine network data are received to AQS to produce data pairs for bias assessments. Much of the new audit process will look familiar on the surface, and the expectation is that this new process will be much more efficient and will standardize the PEP. Overall, the new AQS features will help the Regional Audit Coordinators organize and choose sites easier each year and MoPED will speed data entry while reducing data handling in the laboratory.

Network Assessment Tools

To assist States and other monitoring agencies in preparing for their 2020 Network Assessments as described in 40 CFR §58.10(d), OAQPS is making a Network Assessment application (NetAssess2020 v1.1) available. It is based on previous Network Assessment Applications used to prepare for the 2010 and 2015 Network assessments. "NetAssess2020 v1.1" is available at: https://sti-r-shiny.shinyapps.io/EPA_Network_Assessment/. The software should be straightforward to use, and no password is needed. Internet Explorer may not work with the application but should function correctly using Chrome or Firefox. A big thanks to Ben Wells of OAQPS for working with STI to get this application up and running.

Ozone Transfer Standard TAD Revision

Work has been continuing on the O₃ TAD revision (thanks largely to Scott Hamilton) as mentioned in previous QA EYE Issues. The first draft of the O₃ TAD revision has been completed and the workgroup is currently having biweekly conference calls. A final review will be completed in a face-to-face meeting at OAQPS in early 2020. The new TAD should be final by mid-2020. The intent of this revision is to provide more detailed and practical information and best practices for establishing and maintaining the traceability of O₃ measurements within a monitoring network. It also aims to align the formatting with other Quality Assurance documents published by OAQPS. Scott Hamilton (EPA Region 5), Greg Noah (OAQPS) and Trisha Curran (OAQPS) are coordinating this effort.

Teledyne API Continuous PM Checklist

The Teledyne API Model T640 and T640x are real-time, continuous PM monitors. The model T640 with 640x option (T640x) is an approved Federal Equivalent Method (FEM) for PM_{2.5} [EQPM-0516-238], PM₁₀ [EQPM-0516-239], and PM_{10-2.5} [EQPM-0516-240]. The model T640 is an approved FEM for PM_{2.5} [EQPM-0516-236]. The T640 also measures PM₁₀ and PM_{10-2.5}, but only the PM_{2.5} fraction meets FEM requirements.

A checklist has been drafted that is intended to support auditors and managers in conducting a Technical Systems Audit of the Teledyne T640 or T640x PM continuous monitors. Conducting an on-site audit of the Teledyne T640 or T640x involves evaluating several aspects of the set-up, operation, maintenance, and reporting of the monitor. The checklist is being used on a trial basis in R1 and R10 to determine if anything can be improved in the questions and if there are any important questions missing. It will also be shared with EPA-ORD and Teledyne to get their feedback.

Continued on Page 15.

Things in the Pipeline *(continued from Page 13 and 14)*

New Metadata Requirements in AQS

In order to be consistent with 40 CFR 58.12 (Annual Network Plans) we are requiring certain metadata parameters to be entered AQS. The Measurement Scale (a.k.a. scale of representativeness and scale of representation), Monitor Type (e.g. SLAMS, SPM...), and Certifying Agency. These metadata would be required for the listed pollutants and parameters. Please note that for Certifying Agency the system will default to the PQA0 unless otherwise designated. This will avoid any monitors being accidentally excluded from the AMP600 and overlooked during the data certification process.

CO -42101

SO₂ – 42401

SO₂ Max 5-min Average – 42406

NO₂ – 42602

O₃ – 44201

PM₁₀ – 81102

PM_{2.5} – 88101

PM_{2.5} (AQS and Speciation Mass) – 88502

PM_{10-2.5} (PMcoarse) – 86101

Pb (TSP) LC – 14129

Some other metadata that needs attention are street addresses, operating schedules, and monitoring objectives. “Other” should no longer be used as a monitor type. “Unknown” and “Other” should not be used for monitoring objectives unless none of the other monitoring objectives apply. If you believe this is the case, please contact your EPA Regional Office. Measurement Scales for Collocated monitors should

have the same measurement scale as the primary monitor. Also, 5-min data should have the same measurement scale as the 1-hr data from the same monitor. We are asking that everyone periodically take time to ensure your metadata is up correct in AQS for each of your monitors. This ensures any determinations, maps, documents and other items that rely on this information are also correct.

Low Concentration Acceptance Criteria for PM_{2.5} Precision and Bias Technical Memo

We have been evaluating the PM_{2.5} collocated QA data as well as the performance evaluation data and we think we may be able to develop a technical memo that would allow a 1 ug/m³ difference acceptance criteria to be used in data verifications. More detail is available in an article in QA Eye Issue 23.

2020 National Ambient Air Monitoring Conference

The 2020 National Ambient Air Monitoring Conference is scheduled for the week of August 10th at the Westin Hotel in Pittsburgh, Pennsylvania. We are hoping for as much state, local, tribal, and regional participation as possible and are looking forward to seeing everyone there. Please keep your eyes and ears open for more information.

Data Validation Guidance Document

A guidance document for data validation is being developed. We it will be ready for publication by the end of 2020.

Quote of the Quarter

“Our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children’s future. And, we are all mortal.” – *John F. Kennedy*

A BIG Thanks to the Authors Contributing to the QA EYE



Many thanks to those who provided articles for this issue. They include:

- Region 3 Air Monitoring Group for their contribution to the “Regional Spotlight”, especially Verena Joerger who worked hard to compile all the information on her co-workers (pg. 12),
- Neilson Watkins and Trisha Curran for New Network Affiliation (pg. 13),
- Greg Noah for the Flow Transfer Standard Guidance (pg. 13), R-Shiny Tool (pg. 13),
- Trisha Curran for the NPAP QAPP (pg. 13), Low Concentration Acceptance Criteria (pg. 15),
- Stephanie McCarthy for the APTI-470 (pg. 13), Data Validation Guidance Document (pg. 15),
- Greg Noah and Dennis Crumpler for PEP Program Update (pg. 14),
- Ben Wells and Tim Hanley for the Tools for Network Assessment (pg. 14),
- Scott Hamilton for the O₃ TAD (pg. 14),
- Tim Hanley for Teledyne Checklist (pg. 14), the Metadata Requirements (pg. 15), and
- Laurie Trinca for the 2020 Conference (pg. 15).

Have You Got Anything to Say?

We are always looking for interesting articles for the QA EYE.

Please take a few moments out of a day to write up something you feel would help the QA community

OR if you have an environmental quote you would like to share.

Websites

Website	URL	Description
EPA Quality Staff	https://www.epa.gov/quality	Overall EPA QA policy and guidance
AMTIC	https://www.epa.gov/amtic	Ambient air monitoring and QA
AMTIC QA Page	https://www.epa.gov/amtic/amtic-quality-assurance	Direct access to QA programs
EPA AQS	https://www.epa.gov/aqs	AQS Database, Training, & Information
EPA NPAP PEAT	https://www.epa.gov/aqs/aqs-peat	PEAT program for NPAP Data



EPA-OAQPS

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RTP, NC 27711

The Office of Air Quality Planning and Standards is dedicated to developing a quality system to ensure that the Nation’s ambient air data is of appropriate quality for informed decision making. We realize that it is only through the efforts of our EPA partners and the monitoring organizations that this data quality goal will be met. This newsletter is intended to provide up-to-date communications on changes or improvements to our quality system. Please pass a copy of this along to your peers and e-mail us with any issues you’d like discussed.

Trisha Curran
curran.trisha@epa.gov



Key People

Since 1998, the OAQPS QA Team has been working with the Office of Radiation and Indoor Air in Las Vegas, and ORD in Research Triangle Park in order to accomplish OAQPS’s QA mission. The following personnel are listed by the major programs they implement. Since all are EPA employees, their e-mail address is: last name.first name@epa.gov.

Program	Person	Affiliation
CSN/IMPROVE Lab PE and PM _{2.5} Round Robin	Nealson Watkins	OAQPS
Tribal Air Monitoring	Emilio Braganza	ORIA-LV
CSN/IMPROVE Network QA Lead	Jenia McBrian	OAQPS
OAQPS QA Manager	Jenia McBrian	OAQPS
Standard Reference Photometer Lead	Scott Moore	ORD-APPCD
National Air Toxics Trend Sites QA Lead	Greg Noah	OAQPS
Criteria Pollutant QA Lead	Greg Noah	OAQPS
NPAP Lead	Trisha Curran	OAQPS
PM _{2.5} PEP Lead	Dennis Crumpler	OAQPS
Pb PEP Lead	Dennis Crumpler	OAQPS
Ambient Air Protocol Gas Verification Program	Solomon Ricks	OAQPS