



SPECIAL POINTS OF IN- TEREST:

- **Modification to QA Regs**
- **Data Certification Process**
- **POC Fix**

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PM_{2.5} Revision Includes Modifications to QA Regulations

The January 15, 2013 PM_{2.5} revisions provided an opportunity to incorporate the following revisions to the QA Regulations in 40 CFR Part 58 Appendix A.

Use of a weight-of-evidence approach

The first paragraph (1a) in Appendix A describes the weight of evidence approach. While the EPA believes that it is essential to require a minimum set of checks and procedures in Appendix A to support the successful implementation of a quality system, the success or failure of any one check or series of checks should not preclude the EPA from determining that data are of acceptable quality to be used for regulatory decision-making purposes. Accordingly, we included wording to clarify the role that Appendix A generated data quality indicators have in the overall quality sys-

tem that supports ambient air monitoring activities. Failure to conduct or pass a required check or procedure, or a series of required checks or procedures, does not by itself invalidate data for regulatory decision making. Rather, monitoring agencies and EPA shall use the checks and procedures required in Appendix A in combination with other data quality information, reports, and similar documents showing overall compliance with Part 58. Accordingly, EPA and monitoring agencies shall use a "weight of evidence" approach when determining the suitability of data for regulatory decisions.

Waivers for Maximum Allowable Separation of Collocated PM_{2.5} Samplers and Monitors

Ensuring PM_{2.5} continuous FEMs and PM_{2.5} FRMs meet QA collocation requirements (i.e., 1 to 4 meters for PM_{2.5} samplers with

flow rates of less than 200 liters/minute) can be challenging, since in some cases multiple instruments (i.e., FEMs installed in the shelter and FRMs installed on a platform) must be sited at the same station. The EPA believes that instruments spaced farther apart could be maintained within the operational precision of the instruments, especially at sites located at larger scales of representation (e.g., neighborhood scale and larger). Waivers allowing up to 10 meters horizontal distance and up to 3 meters vertical distance (inlet to inlet) between a primary and collocated sampler may be approved by the Regional Administrator for sites at a neighborhood or larger scale of representation. This waiver may be approved during the annual network plan approval process.

New QA Transactions & Certification Procedures Allow QMP/QAPP/TSA Tracking

The new data certification procedures and the new QA Transactions which will be developed this summer (see QA EYE Issue 13, Page 9) allowed Quality Management Plan (QMP), Quality Assurance Project Plan (QAPP) and EPA Regional Office Technical Systems Audit data to be entered into AQS. This information which will be included as QA transac-

tions in the future will now be an easy source of information to users and those tracking this information. The AMP600 Data Concurrence and Evaluation Report (page 2) reports QAPP dates. In addition, AQS has created a QAPP report which is updated every night and can be downloaded from the AQS web

at: <https://aqs.epa.gov/aqsweb/codes/data/QAPP.html>

The full suite of QA Transactions are expected to be completed this summer for implementation later this year and early next.

EPA Changes Data Certification Procedures for 2012 Data

For many years the data certification process relied on the ability of one mortal man, David Lutz to complete the process. Prior to the last National Air Monitoring Meeting in May 2012 in Denver, Dave announced his retirement and OAQPS realized it needed to determine the process it was going to use in the future to evaluate the monitoring organizations certified data.

During the May meeting, the Regions and OAQPS discussed a new automated process that would evaluate the data in manner similar to the criteria used by Dave. Interestingly enough, the OAQPS QA Team had proposed the development of a "QA Report Card" a few years earlier that, due to resource limitations, was never implemented. Aspects of the manual certification review function and the "QA Report Card" were married into the automated Certification, Evaluation and Concurrence Process (CEC).

In the fall of 2012, a Workgroup including EPA Regions, the OAQPS National Air Data Group (NADG) and the Ambient Air Monitoring Group (AAMG) determined what the CEC process would look like. After a number of months of meetings, a proposal was developed that was distributed by the Regions to the monitoring organizations. With a

May 1 deadline for implementation looming, EPA kept pushing forward. Most of the data completeness and quality control information needed for the CEC is in AQS and many reports (i.e., AMP255) could be used to populate what is now the AMP600 - Data Evaluation and Concurrence Report. Figure 1 is an example of this report.

Data Evaluation and Concurrence Report for Gaseous Pollutants

Certifying Year: 2012
 Certifying Agency Code: [REDACTED]
 Parameter: Ozone (44201) (ppm)
 PQAO Name: [REDACTED]
 QAPP Approval Date: 04/21/2010

NPAP Audit Summary: Number of Valid Audits: 2, NPAP Bias: 3.19473, Criteria Met: Y

AQIS Site ID	POC Monitor Type	Routine Data					One Point Quality Check			Annual FE		NPAP Bias	PQAO Level Criteria	QAPP Appr	Aqs Rec Flag	Concur. Flag		
		Mean	Min	Max	Exceed. Count	Outlier Count	Pers. Comp.	Precision	Bias	Complete	Bias					Complete	CA Rec Flag	Epa Flag
1 SLAMS	0.058	0.020	0.117	0	0	97	2.04	-3.24	100	0.30	100		Y	Y	Y	Y	S	
1 SLAMS	0.054	0.017	0.112	0	0	93	3.56	+2.69	100	-2.05	100		Y	Y	Y	Y	S	
1 SLAMS	0.059	0.018	0.127	1	0	95	3.85	+3.42	100	-0.80	100	3.45	Y	Y	Y	Y	S	
1 SLAMS	0.058	0.018	0.125	1	0	99	3.05	+2.74	100	-0.88	100		Y	Y	Y	Y	S	
1 SLAMS	0.049	0.014	0.130	1	0	88	3.45	+2.73	100	0.98	100		Y	Y	Y	Y	S	
1 SLAMS	0.051	0.013	0.097	0	0	98	5.22	+4.30	100	-1.11	100		Y	Y	Y	Y	S	
1 SLAMS	0.055	0.017	0.134	1	0	97	3.45	-3.83	100	-1.94	100	2.94	Y	Y	Y	Y	S	
1 SLAMS	0.056	0.005	0.122	0	0	95	2.25	-2.45	100	2.04	100		Y	Y	Y	Y	S	
1 SLAMS	0.057	0.029	0.123	0	0	79	6.14	+4.95	100	-2.17	100		Y	Y	Y	Y	S	
1 SLAMS	0.050	0.016	0.112	0	0	95	6.69	+4.85	100	0	100		Y	Y	N	Y	S	
Submitter Comment		site operated 1 mo., 1qt QC OK																
1 SLAMS	0.054	0.018	0.125	0	0	93	3.19	+2.85	100	-4.92	100		Y	Y	Y	Y	S	
1 SLAMS	0.055	0.018	0.130	1	0	98	6.82	+7.53	100	-0.58	100		Y	Y	Y	Y	S	

Figure 1 AMP600

The CEC report groups data by certifying agency. This was a chore in itself and was originally based on the EPA Regions providing NADG with a list of certifying agencies from the previous year. As the states and regions tested out the process, some certifying agencies were added and some modified. EPA will develop a report on certifying agencies by site/pollutant/POC so that agencies can check their status each year. At issue in this process is that some certifying agencies certify data for more than one primary quality assurance organization and just because you're a PQAO does not mean you can certify data. Therefore, it's important that all certifying agencies identify their specific site/pollutant/POCs and that no other agency can claim these for certification.

Internal testing of the CEC Process began March 2012 and the system went into production around the middle of April. Lew Weinstock, AAMG Group Leader, provided two training webinars on the system in April. This training can be found on the AQS training website. <http://www.epa.gov/ttn/airs/airsaqs/training/>

Continued on page 3

Data Certification Process (continued)

Based on the acceptance criteria in the CEC proposal, AQS sets a recommended flag (“AQS Rec Flag” in Fig. 1) on the site/pollutant/POC. The certifying agency runs the AMP600 report and then reviews the flags on the certification form shown in Figure 2. The certifying agency can accept the AQS recommended flag or change it in the column “Monitoring Agency Request”. If the flag is changed, the certifying agency must add a rationale for the change on the certification form. Once the agency submits the certification form, the AQS recommended and the certifying agency flags appear on the AMP600 report. In addition, the flags in the EPA Eval column are set to “S” which means that the certifying agency has submitted the data to EPA for evaluation. Finally, the certifying agency submits the required certification letter and reports to the EPA Regions who will evaluate the data and provide an evaluation flag in the “EPA Eval. Flag” column. At this point the EPA Eval flag is either “N” or “Y” for any data submitted for certification.

Based upon evaluations of this process by the monitoring organizations and EPA Regions there have been a number of changes to both the screens and the programs. The system is operational and was used this year for certification. Although there were some program-

ming issues that caused some frustrations we also noticed a number of data base “clean-ups” and corrective actions that were implemented by monitoring organizations reviewing the AMP600 report. In the future we will be revising it so the program can evaluate months instead of years of data so monitoring organizations can evaluate shorter time periods. Although this year’s process

might have been considered an added burden, OAQPS believes in the long run the CEC process will provide an excellent data evaluation tool and should be able to help monitoring organization and certifying agencies identify issue with data quality well before the certification period starts.

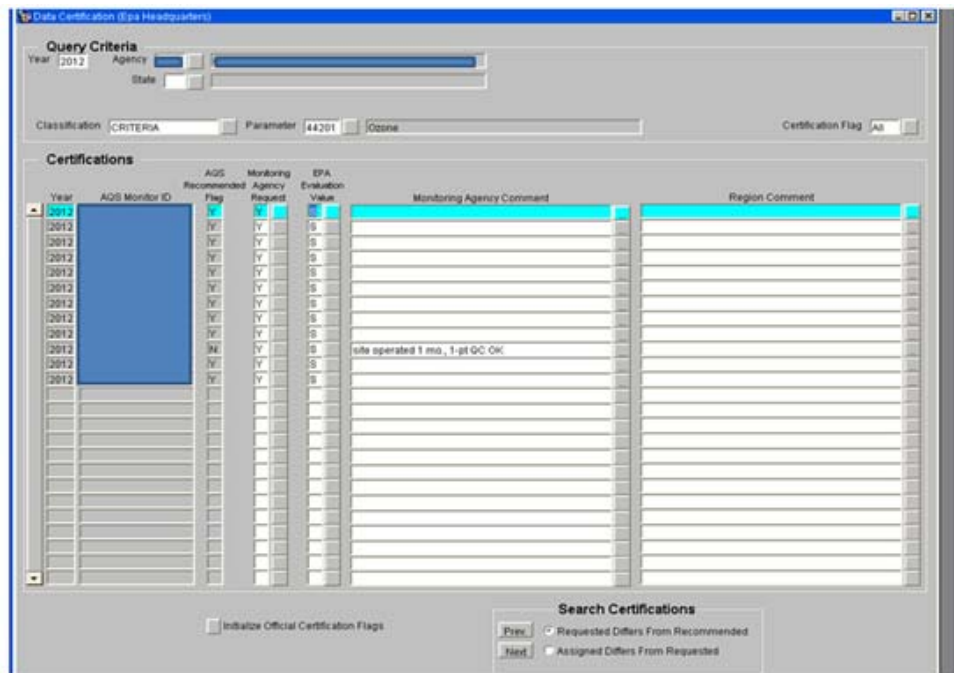


Fig 2 Certification Form

There’s a new Pb-PEP Sheriff in Town!

Dennis Crumpler has done a great job implementing the Pb-PEP program over the past few years. He has provided great leadership helping solve difficult problems with troublesome samplers, piloting a new way of electronically handling audit sample data, and weaving through the many nuances and requirements of the Pb rule. But now, he’s handing over his star to the new kid in town. Yeah, you guessed it, yours truly, Greg Noah, will be your new national Pb-PEP lead. Dennis and I will be working together during a transition period of several months, then he’ll

kick me out onto the lonely prairie of Pb-PEP. Dennis is handing over a program that is in good shape, but we both know of several areas for improvement that we will be working on in the coming months. One area we are addressing immediately is Pb-PEP data submission to AQS. We have been working with our AQS group to create a home for this data (both ESAT PEP and state collocated samples) and we are almost ready to start submitting data. All regional Pb-PEP contacts have or are in the process of reviewing the Pb-PEP re-

sults on the AIRQA website in order to approve the audits. The website sends the audit data (field and laboratory) through a series of automated checks to be sure it meets a set of validation criteria. The regional contacts review the audits, concur with the automated assessment, and electronically sign and approve these audits for submittal to AQS. Assuming the Regions approve the data, we expect that all data Pb-PEP data collected before May 2013 will be posted by August 30 of this year.

Data Certification Process Identifies a Number of Reporting Issues

As the monitoring organizations and EPA Regions implemented the automated certification process, a number of issues were identified. Many were software bugs that were fixed on an almost daily basis as they were identified. However, a few issues related to data entry that need to be resolved are discussed below.

Pb Analysis Audit Reporting

Some organization either did not perform analysis audits as described in 40 CFR part 58 Appendix A section 3.3.4.2, performed these audits but did not report them, had a contractor analyze the audits with the assumption that the contractor would report them (which they did not), or did report them to AQS incorrectly. Earlier QA EYE issues have discussed the Pb analysis audits (Issue 9 pg. 5, Issue 12 pg. 10, Issue 13 pg. 2) but we did not provide any instructions for reporting since the audits have been required for many years. So to help in reporting :

1. Pb analysis audits are loaded using the RA transactions.
2. Be sure to use units '077' micrograms.
3. Level one actual is the known 'lower' value, level one indicated is the lab's response. Level 2 actual is the known higher value, and level 2 indicated is the lab's value. One pair per transaction. If you have more than one on the same day, increment the accuracy audit id number (e.g. from '1' to '2').
4. Choose a monitor ID. Choose a monitor from one of your sites that has the lab in question assigned as the ANALYZING agency. Use that monitor ID, along with its method and duration code.
5. The audit type can be anything... we don't use this field although it is mandatory. If it means something to you, then use the code you choose. The Accuracy Type is PE (for performance evaluation), and the audit class is ANALYTICAL. The local primary standard must be an exact code from the list... however beyond that it is not validated.

The AQS P&A spreadsheet will automatically generate the text transactions . If you haven't used it before, the main tricks to know are that you can look up your monitors when a cell in a blank row is highlighted within the monitor ID columns and you then choose " Look Up Monitor" from Add-ins. To generate transactions, highlight at least one cell in the row (or multiple rows) and then click the Add-in "Generate Transactions".

Start and End Dates

Other than Ozone, which has a required sampling schedule (ozone season), the AMP600 software assumed all pollutants were running year round unless the monitor had a definitive start and end date. Some monitoring organizations where running non-ozone monitors on the ozone schedule but did not identify a start and end date for the monitors. In the future this will be required to ensure the correct evaluations are performed on the sites.

Included in this issue was also a number of monitors that although were no longer active did not have end dates. These were successfully cleaned up by the monitoring organizations.

Reporting of Flow Rate Data- Verification =RP; Audits = RA

EPA received some questions as to why their flow rate data was not showing up in the AMP-600 report. After reviewing this issue it was discovered that some organizations had not distinguished flow rate audits from flow rate verifications. As an example, for PM₁₀, some monitoring organizations reported all their flow rate audits and flow rate verifications as an accuracy transaction (RA). Therefore, even though the information was reported, the AMP-600 was looking in the precision transaction (RP) bin for the flow rate verifications, and finding no data was reporting 0% completeness.

40 CFR Part 58 Appendix A distinguishes flow rate verifications from the semi-annual flow rate audits. Only PM₁₀ **continuous** instruments are required to report flow rate verifications so PM₁₀ is the only AMP-600 report that will report this field. However, since the flow rate verifications are required to be implemented, many monitoring organization choose to report this data for PM₁₀ manual as well as the PM_{2.5} manual and continuous instruments. In the future, when the new QA transactions are implemented, these fields will be more distinguishable. However, since both the RP and RA transactions and the new QA transactions will be used for a period of time for data reporting, be sure to use the RP transaction for flow rate verifications and the RA transaction for the semi-annual flow rate audits.

New EPA QA Policies Directed at Field and Laboratory Operations

In the last few months EPA has developed policy specific to laboratory and field operations. The following is a brief review of both and how these policies may affect the ambient air monitoring community.

Forum on Environmental Measurements (FEM) *excerpt from the FEM guidance document*

This document establishes the Agency's policy requiring organizations generating or using environmental data under certain Agency-funded assistance agreements to submit documentation of their competency prior to award of the agreement or if that is not practicable, prior to beginning any work involving the generation or use of environmental data under the agreement. This includes organizations performing environmental sampling, field measurements, and/or laboratory analyses under Agency-funded agreements.

As charged by the Science Policy Council (now, the Science Technology Policy Council [STPC]) upon the inception of the FEM in 2004, a goal has existed for the FEM is to assure that, nationwide, organizations performing environmental data operations have effective quality management systems and technical competence, and thus have the capability to generate valid environmental data. Organizations performing activities involving the use or generation of environmental data under covered assistance agreements shall provide the Agency with:

- **Quality documentation such as a quality management plan (QMP), and/or other documentation that demonstrates conformance to U.S. EPA quality program requirements; and**
- Demonstration of competency in the field(s) of expertise.

Demonstration of competency may include (but not be limited to):

1. Current participation in accreditation or certification programs that are applicable to the environmental data generated under the Agency-funded assistance;
2. **Ongoing participation by the organization in proficiency testing (PT) or round robin programs conducted by external organizations;**
3. **Ongoing U.S. EPA accepted demonstrations and audits/assessments of proficiency; and**
4. Other pertinent documentation that demonstrates competency (e.g., past performance to similar statement of work [SOW]).

The highlighted elements in the list are those that are implemented by the monitoring agency (QMPs/QAPPS) as well as by EPA. With the implementation of our various performance evaluation programs (i.e., NPAP, PEP, Ozone SRP, etc.) and the EPA Regional technical systems audits (TSAs), OAQPS believes

we have the FEM policy adequately covered for agencies monitoring for NAAQS and some of our major networks like CSN and NATTs.

Field Operations Group Guidelines – The FOG

The FOG Guidelines are **minimum requirements** for establishing a quality management system to support field activities for the Agency. The basis of the FOG Guidelines is EPA Order CIO 2105.0, *Policy and Program Requirements for the Mandatory Agency-wide Quality System* (EPA 2000), and Agency-required quality management plans (QMPs) [see *EPA Quality Manual for Environmental Programs*, CIO 2105-P-01-0 (2000), and *EPA Requirements for Quality Management Plans*, EPA QA/R2 (2001)]. EPA Order CIO 2105.0 applies to all programs that collect, evaluate, and use environmental data for EPA. The FOG Guidelines are developed specifically for field activities that satisfy minimum **existing** requirements of EPA Order CIO 2105.0. The FOG Guidelines are relevant to all Agency organizations that collect environmental data, regardless of the data's intended use. Data and environmental data are defined in EPA Order CIO 2105.0.

The FOG developed ten operational guidelines for field activities (hereafter, FOG Guidelines) to ensure consistency in managing field practices and to reduce potential vulnerabilities. The FOG Guidelines are based on best practices for data collection as determined by EPA field groups, EPA quality requirements, and concepts of management systems established by the International Organization for Standardization (ISO). They are intended to apply to any field sampling, measurements, and observations used by EPA for any purpose, such as ambient monitoring, research, clean-ups, risk management, studying new/revise regulations, screening, compliance monitoring, and enforcement. The FOG Guidelines are derived from EPA and ISO 17025 and 17020 requirements. The following is a brief description of each of the ten FOG Guidelines:

Personnel/Training. Personnel responsible for field activities will have appropriate records documenting qualifications, education, training, experience, and competency for carrying out requirements of field activities.

Document Control. Field groups will maintain a system for the control of all documents relating to their field activities, including the preparation, review, approval, issuance, revision, revocation, and archiving of documents. Controlled documents (policies, SOPs, SOP compendiums, guidance, blank template forms, and checklists) are generated internally for each organization and describe how work will be conducted.

Records Management. Field groups will maintain a records management system to suit their particular circumstances and to comply with applicable federal, EPA, and regional records management regulations and retention schedules. (*continues on pg.6*)

Field and Lab QA Policies (continued)

Evidence Management/Sample Handling. Evidence includes samples, measurements, and documentation, such as field notes and instrument charts. Field groups will establish and maintain procedures for the identification, transportation, handling, protection, storage, and retention of samples and other potential evidence during field studies in accordance with federal criteria for various types of evidence.

Field Documentation. Field groups will establish and maintain procedures to document all field activities to ensure the credibility of all observational, measurement, photographic, and sample collection information.

Field Equipment. Field groups will establish and maintain procedures for field equipment to ensure all equipment is properly identified, maintained, and calibrated.

Field Inspections and Investigations. Field groups will establish and maintain procedures for planning field investigations and inspections, taking into consideration all applicable EPA and program-specific requirements.

Reports. Field groups will establish and maintain a procedure describing minimum standards for the preparation of a written report to summarize results of field activities and compliance inspections.

Internal Audits. Field groups will establish procedures to conduct internal audits to verify that their operations comply with these guidelines. The personnel performing the audits will be qualified and independent from the functions being audited whenever possible.

Corrective Actions. Field groups will establish and maintain a procedure for addressing findings from internal audits through corrective actions whenever non-conformities with these guidelines are identified.

Most elements are covered in the monitoring organizations QAPPs

How does the FOG and FEM Affect the Ambient Air Monitoring Community?

The FOG should have no immediate affect on monitoring organizations. The FOG is not presently required for grantees but may be required in the next few years. The implementation aspects of this policy are still under discussion with Regional and Headquarters leads so OAQPS does not think it is appropriate to implement any policies that may change. In addition, OAQPS believes that many of the elements of the FOG already fall within the guidance and requirements for quality systems included in the development of QMPs, QAPPs and standard operating procedures (SOPs). To their credit, the EPA Regions and the air monitoring community have been developing and implementing these documents, which OAQPS has imbedded in our ambient air QA regulations (40 CFR Part 58 App A). OAQPS has been tracking these documents for years, and as most are aware, we have now included the QMP and QAPP submittal and approval dates in AQS.

The FEM, since it is now policy, will have a more immediate effect. However, the implementation date for this policy is still under discussion.

As indicated on page six and above, we have been pushing hard on the development of QMPs and QAPPs and the implementation of our various performance evaluation programs, which should help achieve these FEM policy requirements. The FEM workgroup is currently developing a one page document that can be used to help grantees demonstrate competence. For ambient air monitoring grants, OAQPS will work with the EPA Regions to develop specific language that will relate to this competency demonstration.

An issue that we do see is related to Tribal air monitoring since many of the tribal monitoring agencies may be small and some can have frequent turnover. The FEM policy is based on grants over \$ 200,000 so although the EPA still requires quality system documentation, some of the additional FEM certification requirements will not be required. In addition, Tribal GAP Grants, which are intended to build capacity and competency, may be exempt from the FEM policy.

Summary

OAQPS and the EPA Regional air monitoring QA staff are working together to interpret the FEM and FOG and to develop a consistent strategy for any additional aspects of these policies that need to be incorporated in future revisions of monitoring organization quality system documentation. Any elements requiring additional information will be identified along with some explanation of how it can be addressed. OAQPS's overall goal is to create a consistent regional approach to fulfill the recommendations of these new policies. A timetable for incorporation of this material in quality system documentation will be developed in a manner that provides as little burden to the monitoring organizations as possible.

The EPA Quality Staff are currently revising the quality system policies and guidance, OAQPS has been advocating for the EPA Quality Staff to incorporate elements of the FEM and FOG that are not currently addressed into their new guidance so that monitoring organizations do not have to address three separate documents when writing or revising their ambient air specific QA documentation and applying for STAG. Stay tuned for updates.

QA Handbook Vol II Revised and Posted

After a lengthy review and editing process, the 2008 version of the QA Handbook Vol II Ambient Air Quality Monitoring Program has been revised; right in time to make the 5-year update cycle. This document was posted on AMTIC June, 2013. Similar to the revision of the 1998 Handbook, a Workgroup made up of technical and QA staff from Tribal, State and Local monitoring organizations, EPA Regions and Ambient Air Monitoring Group staff reviewed about 4 sections at a time, submitted comments on the sections and had a conference call to discuss the comments and come up with an agreed upon revision. The process actually started in early 2011. This took some time and patience but we believe it was a very fruitful effort and the document has

steadily improved from one revision to the next. Not all comments or revision were accepted but each was addressed in a series of comments and responses back to the Workgroup. Additional emphasis was placed on the validation templates and we have tried to provide references for each acceptance quality control criteria included in the template. This revision does not include validation templates for the NCore pollutants but OAQPS will be working on those and posting them on AMTIC once they are completed. In addition, the criteria pollutant validation template in the Handbook will also be posted as a separate file on AMTIC. Since there is a possibility that the templates may change before the next revision to the Handbook, OAQPS decided to post the templates on AMTIC along

with a table that will track any changes made to the templates. In addition, the instruction page of the validation templates in the QA Handbook directs the user to the AMTIC website to see if any updates have taken place.

The Handbook contains an acknowledgement page for the many people, past and present, who took the time to review and improve the document. As the Handbook states, EPA plans on having a conference call with the QA Handbook Revision Workgroup twice a year to identify revisions or additions to the Handbook. OAQPS will keep a running list of these to determine when a new revision is needed.

Elimination of RP Transactions for Collocated Data-2015

Since 2006 (see QA EYE Issue 2 page 5) EPA has been advocating the use of primary monitors and the identification of the CFR required collocated monitor to be identified in the collocations table allowing the collocated data to be submitted as raw data and eliminating the need for monitoring organizations submission of a precision transaction (RP) for this information. Once the new QA transactions are completed this year, use of the RP transaction for collocated

data will be eliminated after a one year grace period which will end in December 2014.

In order to implement this reporting procedure, the primary monitor and the collocated monitor must be identified in the "Monitors Collocation Period" using the "MJ" transaction for the primary and collocated monitor. NADG provided a review of use of both methods and discovered that most organizations (66%)

are using the raw data transaction. HOWEVER out of the 49 monitoring organization that were using RP transactions almost 50% (23) were also entering the collocated data as raw data, so either they are using both entry methods for the same data, which is not necessary, or they have different entry people entering the data differently.

Contact the AQS helpline for further information and help setting this up.

Progress on Low Level Concentration Auditing

OAQPS is about ready to start the low level audit method testing here in RTP. Once that is done, the method will be used to audit the traditional and new Ozone analytical monitoring equipment located in the Ambient Air Monitoring Groups AIRS monitoring. Once this is done, we will use the tested low level

ozone audit system to finish the low level GPT vs NPN NOy audit method testing. You may remember that we tried that method with the NPAP training group in March of 2012, but had issues that kept us from successfully finishing the testing. Once that is done, we will share the results with our

NPAP TTP audit colleagues in the Regions who are ready to do this work with their own systems at their home bases. Then we can discuss what we find and decide how to use the procedures for the monitoring organizations for doing low level ozone and trace NOy.

Zero Tests on the Met One BAM 1020

In October 2012 a number of monitoring agencies shared their Met One BAM zero test data with Tim Hanley (IN, MD, NC, NH, Albuquerque NM, BAAQMD, Cherokee, Hamilton County OH). Tim's evaluation identified a relationship between ambient dew point and the zero test results of the Met One BAM at most, but not all sites.

The relationship is such that when dew point goes down (as we expect coming off the summer into fall; at least in the East and Mid-West), the BAM zero test data goes up. The magnitude of the BAM 1020 zero response is somewhat variable; however, data indicate that a 5 to 10 C drop in dew point corresponds to a 1 to 3 $\mu\text{g}/\text{m}^3$ increase in the mass concentration. While we are still learning the specifics of how this is happening, this issue can potentially be explained due to the changes in moisture affecting the tape during zero tests, which would also affect the tape during normal operation.

We are evaluating this issue and are also working with Met One on possible ways to use the information we have to improve use of the zero tests. While we intend to investigate this further, we are sending this note to Met One BAM users now since many areas of the country are in the middle of a seasonal change in dew point and our recommendations may be of use to a number of those monitoring agencies.

Recommendations:

Perform Zero Test. For those locations with seasonal changes in ambient dew point and especially for those locations impacted by high summer dew points (e.g., where the ambient dew point may be expected to be within several degrees centigrade of the stations internal temperature) we are recommending a zero test be performed and if appropriate a new zero set-point entered in the BAM 1020. For many locations early fall may be an appropriate time to perform a zero test to represent the expected dew points over the coming months. In late Spring, if there are seasonal changes to dew point for your network, it may be necessary to run another set of zero tests for your sites to ensure the zero is representative of conditions at your sites for that time of year. As a reminder, please follow Met One's instructions for per-

forming a zero test. There are three key things to keep in mind in performing a successful zero test:

- Ensure a stable response of the zero concentration. Met One has a spreadsheet on their web site to test this. (http://www.metone.com/bam_user.php)
- Per instructions in the BAM 1020 Manual (BAM-1020-9800, Revision G) page 57. The zero test "should not be performed during a period of rapidly changing weather".
- Ensure that the background level (labeled as BKGD under the SETUP>CALIBRATE menu) entered in the Met One BAM is the negative of the average from the valid 72 hour test. For example, an average from the sample period of $-2.0 \mu\text{g}/\text{m}^3$ is entered as 0.0020.

Datalog Delta-T. Per the Met One Presentation at the National Monitoring Conference in Denver this past May (<http://www.epa.gov/ttn/amtic/files/2012conference/1B02BAM.pdf>), page 9; set the Datalog Delta-T: to "YES". This will log the Delta-T (the increase in filter temperature of the BAM 1020 over ambient temperature) to Channel 5.

Log Met One BAM temperature and RH data to your data logger. If the station data logger is capable of recording relative humidity, Delta T, and ambient temperature from the BAM 1020, configure the data logger to record these values. These data will enable your staff to track changes in dew point (which requires a calculation) and how they may affect the zero data at your site. If you are unable to log these data directly, include these data when retrieving the digital data from the instrument during maintenance.

Follow-Up:

As you incorporate these changes, we are interested in hearing from you on your experiences and results of incorporating these more frequent zero tests. If you or your monitoring agency has information or results you think others may be interested in, please share that information with the applicable technical contact on monitoring from your EPA Regional Office. We may potentially refine these procedures at a later date, based on additional testing and/or what we learn from experiences in the field.

Greg Noah Joins OAQPS Ambient Air Monitoring QA Team

With the retirement of David Lutz (data certification) from OAQPS, Mike Jones (NATTS Lead) accepting a new position in OAQPS, and Dennis Mikel (NATTS QA Lead) taking a sabbatical for long term training to NC State, the Ambient Air Monitoring Group has been short-handed on implementing our QA programs. Luckily the EPA regional air programs have talented individuals who can hit the ground running. Greg Noah, formerly from Region 4, is one of those individuals. 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} Performance Evaluation Program (PEP) back in 1999. Since Region 4 also houses the National PEP filter weighing laboratory, Greg was familiar with both the field and laboratory aspects of the program. Greg was also trained and certified for the gaseous National Performance Audit Program (NPAP) which he implemented while in Region 4. After a number of years, he became an EPA Region 4 employee in the Science Ecosystem Support Division and continued as primary point of contact for the NPAP and PEP programs including the Pb-PEP program. Greg maintained a focus on ambient air work and conducted technical systems audits of the ambient air monitoring agencies and helped with our OAQPS guidance documents like the QA Handbook, NPAP and PEP QAPPs and SOPs. Greg also was a major contributor in the emergency response air monitoring activities that took place during Hurricane Katrina and the BP spill in the Gulf Coast. These experiences in Region 4, plus many more, will make

Greg a valuable member of the Ambient Air Monitoring Group at OAQPS.

Greg arrived at OAQPS in February and has hit the ground running. Some of his duties will include:

- OAQPS lead for the Field Operation Group (FOG... see article on page 6)
- QA lead for the Pb-PEP (QAPP revision/Training/data reporting see article on page 3)
- Participant in the NATTS QA Program update (DQOs/TAD development/PT Implementation)
- Maintaining the OAQPS PM2.5 filter weighing room
- Maintenance and tracking the E-BAM loan program

The above are just a few for starters. Welcome aboard Greg!



Ozone Transfer Standard Document to Undergo Minor Revisions

Over the past year there has been some issues related to the wording in the technical assistance document *Transfer Standards for the Calibration of Air Monitoring Analyzers for Ozone*, which was revised November 2010. Section 3 of this document, under qualification, makes the statement

“ Only transfer standards that have met the requirements established in 40 CFR Part 50 Appendix D and are

either an approved Federal Reference Method (FRM) or Federal Equivalent (FEM) should be used in ambient air monitoring and as such, should meet the qualification requirements described in this Appendix”

Since the guidance allow the transfer standard to be a generation device and a photometer, just a photometer, or just a generation device, there will be cases where the

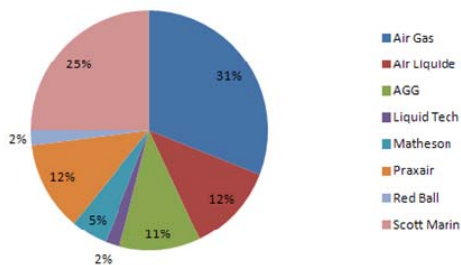
transfer standards will not be FRM/FEM devices and therefore this wording in Section 3 will be revised. While EPA has the document under review, we will perform any additional “clean-ups” or revisions necessary to improve the document. If you have any suggestion for revisions please send them to Mike Papp (papp.michael@epa.gov)

Ambient Air Protocol Gas Verification Program Completes 3rd Year

A third year of implementation of the Ambient Air Protocol Gas Verification program (AA-PGVP) wrapped up in December of 2012. As done in the past, EPA provided the specialty gas producers an opportunity to review the last quarter of verification data, take any corrective action needed, and review the final report prior to publication on AMTIC in May of 2013.

In order to determine what specialty gas producers were being used by monitoring organizations, EPA asked each monitoring organization to complete a web-based survey. For the 2012 AA-PGVP, EPA received surveys from 87 of a possible 120 monitoring organizations, which is about a 72% response rate. This was higher than 2011, but still slightly lower than the input received from 2010, which was around 75%. The illustration provided details producer use based upon the responses received.

PQAO/RO Specialty Gas Producer Use
(87 responses, 100 selections)



Of the 87 respondents, 35 either did not want to participate or were not receiving a cylinder during the year. This narrowed the participants down to 52. Of the possible participants, 11 monitoring organizations sent cylinders to EPA. EPA did not have a monitoring organization volunteer submit a cylinder from Matheson, Red Ball, or Liquid Technology. As a result, EPA invited those producers to send a cylinder

directly to EPA. Some of the cylinders submitted contained multiple pollutants so, although 53 cylinders were sent to the RAVLs, 58 verifications were performed.

The Results

As required in 40 CFR Part 75 Appendix A, EPA Protocol Gases must have a certified uncertainty (95 percent confidence interval) that must not be greater than plus or minus (\pm) 2.0 percent of the certified concentration (tag value) of the gas mixture. This acceptance criterion is for the Acid Rain Program. The AA-PGVP adopted the criteria as its data quality objective and developed a quality system to allow the RAVLs to determine whether or not an individual protocol gas standard concentration was within \pm 2% of the certified value. The Ambient Air Program has never identified an acceptance criterion for the protocol gases. Since the AA-PGVP has not been established to provide a statistically rigorous assessment of any specialty gas producer, the RAVLs report all valid results as analyzed but it is suggested that any difference greater than 4-5% is cause for concern.

In general, the AA-PGVP 2012 verifications have been successful. The quality system, standard operating procedures, analytical equipment and standards maintained the data quality of the program. Results show that of the 58 verifications, 57 (98%) were within the \pm 4-5% AA-PGVP criteria, and 51 (88%) were within the \pm 2% Acid Rain Program criteria.

Survey Improvement

Some improvements were made in survey completeness in 2012, but EPA still did not achieve 100% completeness. EPA has worked to make the survey as "painless" as possible; participation by all monitoring organizations would be appreciated.

Program Issues-- Participation

EPA Continues to Need Your Help!

Similar to 2012, the first 2 quarters of 2013 show very light monitoring organization participation, which may force EPA to invite the specialty gas producers to send cylinders directly from their facility. We would prefer NOT to do this, as this defeats the objective of a blind verification. In 2011, twenty-five percent of last year's cylinders came directly from producers; that number increased in 2012 to fifty-one percent.

We are grateful to the following organizations that participated in last year's survey, and we hope that more will consider participating in 2013:

- EPC of Hillsborough County
- Minnesota Pollution Control Agency
- New Jersey Dept of Environmental Conservation
- New York Dept of Environmental Conservation
- North Carolina Dept. of Natural Resources
- Linn County Public Health\Montana Dept of Environmental Quality
- Rhode Island Office of Air Resource
- South Coast Air Quality Management District
- Southern Ute Indian Tribe
- State of Delaware
- University of Iowa State Hygienic Lab
- Virginia Dept. of Environmental Quality

The POC Fix is In!

The regulatory language for particulate matter (PM) and lead (Pb) monitoring allows for the combining of data when the primary monitor at the site does not sample on a particular day either due to it not being a scheduled sampling day or the instrument did not collect a valid sample. However, EPA is aware of cases where data from more than one monitor is being routinely reported using the same parameter occurrence code (POC) which virtually makes multiple monitors the primary monitor at a site. Earlier guidance dating from the 1990's allowed substituted data to be entered into a single POC but the guidance was developed for infrequent substitution of a malfunctioning primary monitor. Cases occurring more recently involve second and third monitors being intentionally set up for combining data with the primary monitor. EPA has discouraged this practice and continues to suggest that POCs be used to identify each individual physical monitor at a site and that one and only one physical monitor be designated as primary for a given time period at a site.

EPA understands that monitoring organizations are working with limited resources. To reduce costs, some monitoring organizations are setting up multiple samplers at a site to cover the required sampling frequencies needed while being able to visit the site less often. Some monitoring organizations, instead of purchasing sequential samplers for every day or one-in-three day sampling frequencies, are using single channel samplers and "rotating" them in to cover the required sampling frequency needs.

Use of multiple samplers to provide NAAQS estimates does create additional measurement uncertainty since each monitor can have different precision and bias that can affect the confidence one has in the concentration estimate. This becomes more difficult to evaluate when the data is reported to one POC as compared to reporting each sampler as a separate POC. Because of this, pollutant-specific AQS enhancements have been made and are being planned.

DATA CALCULATIONS AND AQS:

PM_{2.5} (AQS Parameter Code 88101): 40 CFR Part 50 Appendix N specifically states, "Data for the primary monitor shall be augmented as much as possible with data from collocated FRM/FEM/ARM monitors. If a valid 24-hour measurement is not produced from the primary monitor for a particular day (scheduled or otherwise), but a valid sample is generated by a collocated FRM/FEM/ARM instrument (and recorded in AQS), then that collocated value shall be considered part of the site data record (i.e., that site's daily value). If more than one valid collocated FRM/FEM/ARM value is available, the average of those valid collocated values shall be used as the daily value." In 2008 AQS was enhanced to automatically combine values from collocated monitors at a site on days when the primary monitor did not collect a valid sample. This removed the need for monitoring agencies to manually combine the data for PM_{2.5} from multiple POCs prior to submission to AQS.

Lead (AQS Parameter Codes 14129 and 85129): 40 CFR Part 50 Appendix R also specifies that data from the primary monitor at a site shall be augmented with data from collocated FRM/FEM monitors in a manner identical to that for PM_{2.5}. This capability was implemented in AQS in 2010. This removed the need for monitoring agencies to manually combine the data for Lead from multiple POCs prior to submission to AQS.

PM₁₀ (AQS Parameter Code 81102): 40 CFR Part 50 Appendix K is not explicit about the issue of combining data from a primary monitor at a site with data from collocated FRM/FEM monitors. However, the guidance documents developed in the late 1980's allowed substitution of values from collocated FRM/FEM monitors with the same method code as the primary monitor, on days when the primary monitor did not collect a valid sample. AQS will be configured to combine data from multiple samplers for PM₁₀ if the samplers combined are the same method designation as the primary monitor (sampler). So, for example:

- Continuous instruments can be combined with the continuous instrument of the same method designation as the primary but not with other continuous instruments of unlike method designa-

tion or manual samplers at the site.

- Manual samplers can be combined with the manual sampler of the same method designation as the primary but not with other manual samplers of unlike method designation or continuous instruments at the site.

The data from each individual sampler should be entered in a separate POC. AQS will be configured to combine this data from monitors with the same method code for attainment decisions and also present completeness statistics for the acceptable combined site/monitor(s) as well as for each individual monitor at the site.

In the instance of collocation for QA purposes, the collocated sampler can serve dual purposes:

- as the required QA collocated monitor (CFR does not require that the collocated monitor for PM₁₀ be the same method designation as the primary) and,
- as a sampler that can be combined with the primary if the collocated QA sampler is the **same** method designation as the primary.

The AQS design value report will be enhanced in 2013 to use these site-method daily values to compute the "expected exceedances" for NAAQS compliance determination. This removes the need for monitoring agencies to manually combine the data for PM₁₀ from multiple POCs with the same method code prior to submission to AQS.

Data Completeness: For PM_{2.5} and Pb, the site-level completeness and PM₁₀, the site-method-level completeness shall be evaluated to determine monitoring completeness for NAAQS compliance purposes. This means that if collocated monitors are configured in AQS to use a higher Required Collection Frequency (RCF) than the actual sampling frequency (e.g. RCF set to 3 with actual sampling occurring every 6 day, in order to generate a site-level 1-in-3 day collection frequency), the monitor-level completeness of the collocated monitors shall not be considered for compliance purposes. The EPA plans to enhance the AQS "Data Completeness Report" to reflect this strategy. In addition, other AQS reports will provide completeness statistics for each monitor for users requiring this information.

QA Common Sense for Tribes in Alaska

Article originally written for the TAMS Newsletter

The TAMS Center Research Specialist Melinda Ronca-Battista just completed a series of four webinars to tribal professionals in Alaska on the fundamentals of quality assurance. 21 tribal professionals participated in the webinars. Melinda was honored to have assistance from tribal environmental professionals from Seldovia Village and the Alaskan Native Tribal Health Consortium (ANTHC). Material

and data presented during the webinars was from Seldovia Village, Bristol Bay, and Noorvik. The TAMS Center is grateful to those tribal organizations for sharing their experiences. The instructional team reviewed quality assurance for surveys, in which no data are gathered using instruments (such as IAQ assessments), data from Alaskan analyzers to demonstrate PM monitoring, basic principles of bias and precision, and manipulating and charting using excel. Many participants expressed interest in more webinars, includ-

ing more detailed excel webinars, so the TAMS Center plans to deliver more which will be advertised using the ITEP listserve. If you are interested, please contact Melinda.Ronca-Battista@nau.edu. ITEP and the TAMS Center rely heavily on guidance and feedback from the tribal environmental professionals for courses and webinars. The videos can be found at <http://www4.nau.edu/tams/training/wbnrQA-agenda.asp>

Share Your QAPP

The Institute for Tribal Environmental Professionals is revising the software that tribes use to prepare Quality Assurance Project Plans. If you have an approved plan, and would like to share it with tribal environmental programs who could benefit from your experience, and are interested in collaborating more closely with tribal air monitoring programs, please contact Melinda Ronca Battista. She can be

reached at Melinda.ronca-battista@nau.edu. Most tribal air programs are operated by one person, and most of these people have other duties such as outreach, maintaining or updating Emission Inventories, all data reporting, and often water quality monitoring duties as well. Your assistance will be much appreciated, and if it is acceptable to you, your name will be credited in the

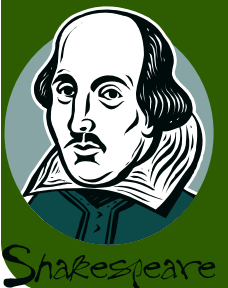
opening screen of the program itself. Melinda is also very interested in obtaining guidance from US EPA regional offices, and any checklist or similar tools for preparing Quality Assurance Project Plans from regional offices would ultimately make the task of reviewing the plans much easier on the regional personnel. If you have other suggestions or guidance,

Authors Contributing to the QA EYE— Have You Got Anything to Say?

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

- Greg Noah for the Pb-PEP (pg. 3),
- Mark Shanis for the Low Level Audit Update (pg. 7)
- Tim Hanley for the Zero Tests for the BAM 1020 (pg. 8),
- Solomon Ricks for the Ambient Air Protocol Gas (pg. 10), and,
- Melinda Ronca Battista's articles on QA Common Sense for Tribes in Alaska and the Share Your QAPP articles on page 12.

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 .





EPA

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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.

Mike Papp

Important People and Websites

Since 1998, the OAQPS QA Team has been working with the Office of Radiation and Indoor Air in Montgomery and Las Vegas and ORD in order to accomplish it'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.

The **EPA Regions** are the primary contacts for the monitoring organizations and should always be informed of QA issues.

Program

- STN/IMPROVE Lab Performance Evaluations
- Tribal Air Monitoring
- Pb-PEP QA Lead
- Chemical Speciation Network QA Lead
- OAQPS QA Manager
- Standard Reference Photometer Lead
- Speciation Trends Network/IMPROVE Field Audits
- PM2.5 PEP Lead
- Criteria Pollutant QA Lead
- NPAP Lead
- AA-PGVP Leqd
- STN/IMPROVE Lab PE/TSA/Special Studies

Person

- Eric Bozwell
- Emilio Braganza
- Greg Noah
- Dennis Crumpler
- Joe Elkins
- Scott Moore
- Jeff Lantz
- Dennis Crumpler
- Mike Papp
- Mark Shanis
- Solomon Ricks
- Jewell Smiley

Affiliation

- ORIA- Montgomery
- ORIA-LV
- OAQPS
- OAQPS
- OAQPS
- ORD-APPCD
- ORIA -LV
- OAQPS
- OAQPS
- OAQPS
- OAQPS
- ORIA-Montgomery

Websites

Website

EPA Quality Staff
AMTIC
AMTIC QA Page

URL

[EPA Quality System](http://www.epa.gov/ttn/amtic/)
<http://www.epa.gov/ttn/amtic/>
<http://www.epa.gov/ttn/amtic/quality.html>

Description

Overall EPA QA policy and guidance
Ambient air monitoring and QA
Direct access to QA programs