EPA OFFICE OF AIR QUALITY PLANNING AND STANDARDS

SPECIAL POINTS OF INTEREST:

- Ambient Air QA
 utilizes 2 days at
 National QA
 Meeting
- Dennis Mikel wins QA Award
- Innovation occurring in NPAP
 Program
- AMP255 needs some repair

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ISSUE 6



Ambient Air Monitoring Workgroup Keeps Streak Alive at National QA Meeting

For the seventh year in a row, OAQPS has worked with the EPA Quality Staff to facilitate ambient air quality assurance sessions at their national meeting. The 27th Annual National Conference on Managing Environmental Quality Systems was held in Seattle Washington, April 21 through 24. This year, the ambient air QA Team prepared for two days of activities.

Based on comments we received two years ago, the QA Strategy Workgroup developed a one-day introductory training course for ambient air quality assurance. The course was prepared and taught by instructors from OAQPS, the EPA Regions and monitoring organizations and was attended by approximately 50 people; the majority from ambient air monitoring organizations. However, we did have people who were attending other courses come by and attend the ambient air course after finding it more interesting! Course evaluations provided positive feedback on the training. There is currently an effort by the Western Regional Planning Organization to

revise the 5-day Air Pollution Training Institute course Quality Assurance for Air Pollution Measurement Systems (APTI 470). The revision will be structured similarly to the one day course but significantly expand the material. The two courses will dovetail nicely together; the one-day course being more of a primer and good for training/ informing management, and the five-day course for those needing the details. Over the next year we hope to develop a training CD of the one-day course. (continued on page 2)

Dennis Mikel Receives Barbara Metzger QA Manager of the Year Award

As a welcome surprise, during the plenary session at the 27th Annual National Conference on Managing Environmental Quality Systems, Dennis Mikel was awarded the Metzger QA Manager of the Year. This is highest quality assurance related award the Agency offers. In 2007, Dennis stepped forward as QA Team Lead for the OAQPS Ambient Air Monitoring QA Team while Mike Papp fulfilled a detail working with the Tribal Team in the Community and Tribal Programs Group. Dennis continued to perform his duties as the ambient air toxics QA Lead and assist with precursor gas monitoring activities while also taking on the QA Team Leader role. His efforts were recognized in OAQPS as

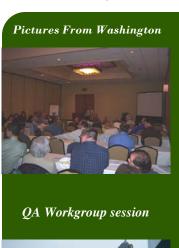
well deserving of the Barbara Metzger award.

Dennis currently works for the Measurement Technology Group within the Air Quality Assessment Division at EPA's Research Triangle Park campus. His current projects include working with different stakeholders on advancing new technologies for emission and ambient monitoring and the QA coordination of the National Air Toxics Trends Network.

Recently, Dennis led a team that re-wrote the EPA QA Handbook Volume IV on Meteorological Measurements. Before coming to RTP, Dennis was an environmental scientist with EPA- Region 4 in Atlanta Georgia. Prior to joining the EPA, Dennis worked for Ventura County Air Pollution Control District and AeroVironment Inc. Congratulations Dennis!



Dennis Mikel (I) receiving award from Reggie Cheatham (r), Director of the EPA Quality Staff





View of Seattle from a ferry



Seashore at Olympic

National Park



View from Hurricane Ridge
Olympic National Park

Ambient Air Monitoring Workgroup Keeps Streak Alive (continued)

The second day of the national meeting was a long one. Four hours were devoted to formal presentations and about six hours were devoted to issues and topics identified by the QA Strategy Workgroup. The sessions were well attended (50 to 60 people). As usual, the QA Strategy Workgroup was the last group to leave at 6:40.

The venue was a good setting and it appeared that the two days were worthwhile to those in attendance. All QA training materials, formal presentations, topic presentations and a summary of the topic sessions can be found at the following website: http://www.epa.gov/ttn/amtic/qa-meeting-april-2008.html

Precursor Gas Monitoring... Preliminary Precision and Bias Looking Good

At the National QA Meeting, Dennis Mikel provided a discussion on what we are starting to see in the way of QA results from some of the precursor gas sites that are in operation. The results presented below are only from a three or four sites and it was recognized that there are more sites in operation than are shown in the table. The data presented came from the 1 point QC checks that are submitted to AQS and can be used to determine precision and bias. With a few exceptions, it appears we may be able to achieve or precision and bias goals of 10%. We'll be doing a more thorough evaluation of precision and bias data from the NCore sites this year. We are starting to run AMP255 reports on NCore sites and will be able to perform this function more effectively if monitoring organizations identify the NCore sites using the monitoring type "Proposed NCore". However, with the exception of NOy, OAQPS can also use method codes to identify the precursor gas instruments.

Pollutant	Number of Values	Coefficient of Variance	Bias
CO	1223	12.6	+/-8.6
NOy	828	8.5	-6.2
SO2	1023	6.5	+/-3.6

Air Quality System (AQS) Meeting Set for August

The Annual AQS meeting is set for August 18-22 in Milwaukee, WI. The first two days are scheduled for training activities and will include a 2 day AQS Introductory course, Oracle Discoverer training for new users, AQS Precision & Accuracy Transaction Generator training, and training on how to use the AQS standard reports, especially the new P/A Quality Indicatory Summary Report (AMP255) used in data certification.

More information can be found on the AQS website at: http://www.epa.gov/ttn/airs/airsaqs/conference/

National Performance Audit Program Improving and Expanding

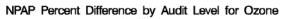
Since the development of a national through the probe (TTP) audit program, a number of EPA Regions and monitoring organizations have been innovative in their use of the equipment and have developed some noteworthy modifications.

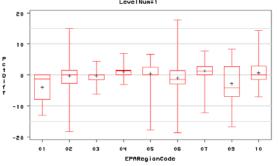


Second generation of case-based NPAP

Due to the issues of mobility of the NPAP trailers and the requirement for audits outside of the continental US, Region 2 has been on the forefront of the development of what they call portable case-based systems. These systems can be shipped to locations as well as transported in smaller vehicles which helps getting them out to Puerto Rico and the Virgin Islands and makes it easier to transport in New York City. They can also be set up like a traditional TTP system but can now be placed in smaller type cargo vans. Region 9 is also pursuing a system like this for use in Hawaii and in space-limited areas. These portable systems use flow to ensure the correct audit concentration rather than a CO analyzer, but they have a quality control routine to ensure that the appropriate quality is maintained by a flow verification on the day of audit with a flow transfer standard, a flow transfer standard verified quarterly against primary standard, and an annual certification of system against OAQPS reference system (TTP-CO based system).

There was some concern as to whether or not the new NPAP ozone audit acceptance limit of 10% could be met, especially for the low level audit concentration. The figure to the right provides and assessment of the low concentration audit level, and for the most part, the results are well within the acceptance limits. EPA also looked at the NO_2 low level audit and found more variability in that concentration which suggests leaving the NO_2 and SO_2 acceptance limits at 15% for now. EPA is also proposing a process to report the NPAP data to AQS in a more timely fashion that would include the ESAT contractor submitting the data into an unofficial AQS "holding area" to ensure that no entry errors occur, and then sending the information back to the audited monitoring organization for official upload. We'll be pursuing this procedure with the monitoring organizations this year.





EPA is implementing tests to determine whether or not NPAP TTP will work at NCore stations operating the precursor gas analyzers. Two NPAP TTP trailers have been outfitted with precursor gas equipment; one in RTP, and a second at the Tribal Air Monitoring (TAMS) Center in Las Vegas. Work has been focused in RTP where tests in the laboratory have provided acceptable results. EPA will proceed with a test at the OAQPS Burden's Creek monitoring site in May/June, 2008. If tests go well, the next step would be to set up a side-by-side test of the Region 4 NPAP TTP and the precursor gas TTP at the North Carolina NCore site. This is anticipated in the summer or fall of 2008.



When EPA was pursuing the development of the TTP mobile laboratories, it set the trailers up for duel use: auditing and sampling. EPA wanted to take advantage of the laboratories capability to provide a mobile sampling platform and many of the NPAP trailers have sampling inlets on the roof as well as platforms for placement and operation of sampling equipment. Region 7 took advantage of the sampling aspects when a plant housing chemicals in 55 gallon drums exploded sending a plume of smoke into the area. The Region 7 staff set up the NPAP trailer to monitor the plume for 24 hours which helped the city determine what actions it needed to take to protect its citizens.



Michigan has also pursued through the probe technology for toxics monitoring. Since 2004, Susan Kilmer, from the Michigan Department of Environmental Quality, has been pursuing a TTP for VOCs and carbonyls at a number of toxics monitoring sites in Michigan with some success and improvement in data quality.

Presentations on the case based system, the Region 7 experience, and MDEQ Toxics TTP were made at the QA National Meeting and be found at http://www.epa.gov/ttn/amtic/qa-meeting-april-2008.html

QA Handbook Volume IV Finalized and Calibration DVD Developed

After some additional review and editing, the QA Handbook Volume IV for Meteorological Measurements was finalized in March of 2008 and can be found on AMTIC http://www.epa.gov/ttn/amtic/met.html. In addition to the document, videos of calibration methods for a num-



ber of the meteorological instruments have been developed which have also been placed on the website. For additional information on the Handbook, contact Dennis Mikel at mikel.dennisk@epa.gov

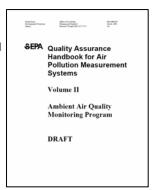
First Draft of the QA Handbook Volume II Complete

The first draft of the QA Handbook Vol II was completed in March 2008 and distributed to the QA Strategy Workgroup and on AMTIC http://www.epa.gov/ttn/amtic/qabook.html for review . The first review closed May 30. A few items that were highlighted in the new version include:

- Heavy use of web links in footnotes in order to provide the reader sources with more detailed information.
- Removed high volume PVC laminar inlets. We have made the Handbook consistent with CFR on the use of Teflon and borosilicate glass only for all inlets and the sampling train and are discouraging the use of high flow inlets which are difficult to audit.
- Removed zero/span calibrations 1 and 2 from section 12 and included the discussion of zero, span and precision checks in the QC section. The calibration section still needs some revision.
- New Attachments
 - -Monitoring Program Fact Sheets
 - -QA Info attachment
 - -Color validation templates

Since the revision of this document has taken longer than expected, it was proposed that the new version of this document be posted on AMTIC in such a manner that sections can be continuously revised without having to revise the whole document. Therefore, if a rule is changed that effects one or two sections of

the Handbook, these sections will be revised and a quality bulletin explaining the change, and what sections are effected by the change,



can be posted on AMTIC. Monitoring organizations can ensure their Handbook is current by reviewing the quality bulletin postings and downloading the appropriate sections. For additional information on the Handbook, contact Mike Papp at papp.michael@epa.gov

Precursor Gas CO Monitoring Training DVD Available, Others Coming Soon

The "Operation, Maintenance, and Calibration of Trace Level CO Instruments" training DVD has been created in support of the implementation of the NCore Monitoring Network that is required to be operational by January 1, 2011. This network is intended to support multiple objectives with a greater emphasis on assessment, research support, and accountability than the traditional NAMS/SLAMS networks. Each site will be multi-

pollutant in scope and operators will need to be well versed in the standard operating procedures for pollutants with measurement levels that are unique and sensitive. Due to shrinking funds available for bringing operators to train locally, or traveling to locations nationwide, we have developed an extremely cost -effective training aid to assist site operators in running these new instruments. The CO DVD is the first in a series of tools that the operators can take to their sites for reference or help to train new staff members at the office. The information is also

available on our AMTIC website. The material has been developed in chapters for convenience into overview, rationale, terminology, and actual hands-on operational techniques. Please take an opportunity to check out the DVD on http://www.epa.gov/ttn/amtic/ncore/guidance.html and provide any comments regarding usefulness as a training tool, format in terms of ease of use, the appropriateness of the information to your job, and whether you would like to see more of these training tools made available to Geri Dorosz at dorosz.geri@epa.gov.

Data Certification and the AMP255 Report...Fixes Needed

OAQPS has been receiving calls and emails from monitoring organization that are starting the review of data in support of CY2007 certifications that are due on July 1, 2008. These contacts have indicated that the QA requirements, as reported by the required AMP255 report, are not correct. This memo identifies where there are inconsistencies in the AMP255 with the current CFR requirements. Table 1 (page 6) provides a summary of these inconsistencies that will need to be fixed in the report.

The AMP255 was developed prior to the Oct 17, 2006 monitoring regulation changes and therefore reflect some of the pre-2006 QA requirements. In many cases, the 2006 requirements reduced the frequency of a number of our QA requirements, particularly our PM_{10} and $PM_{2.5}$ requirements for flow rate audits and collocation. Since the reduced requirements have not been included in the AMP255 evaluations, the completeness reports will, in most cases (with the exception of lead flow rate audits which was increased from 1 to 2 per year), be reporting lower completeness than it should. For example, using the first item in Table 1, the PM_{10} automated flow rate verification was revised in 2006 from every two weeks to once a month (50% reduction). So, an agency that performed all their monthly flow rate verification would see a misleading 50% completeness estimate in the AMP255 instead of 100%.

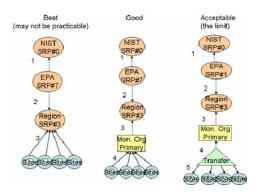
The Ambient Air Monitoring Group is aware of these inconsistencies identified in Table 1 and will take them into account when performing the data certification reviews. The National Air Data Group is also aware of the problems and they are planning to correct the AMP255 later this year. It is anticipated that the issues identified in Table 1 will be corrected before the beginning of 2009 if not sooner.

Additionally, please note that the instructions for data certification (see question 11) that were distributed by OAQPS earlier in May noted that the ZIP file produced by the AMP255 report was to be attached to emails requesting review of data certifications that were transmitted by monitoring agencies to EPA. Please note that EPA's firewall automatically removes attached ZIP files, so such files must be renamed (e.g, from .ZIP to .PIZ) before emailing to the Regions and/or David Lutz at lutz.david@epa.gov.

Work Planned to Make Use of Consistent Terminology When Discussing Standards

Over time, EPA, monitoring organizations and standard manufacturers have not been consistent with there use of the terms primary, secondary, transfer and working standards. During the Nation QA Meeting (see article on Page 2), Mark Shanis walked through some of the issues related to the terms. Based upon a concern about vendors that may incorrectly advertising the sale of primary standards, OAQPS will attempt to revise our ozone standards certification document and come to agreement in the monitoring community on how we should be using these terms. Mark plans on expanding the use of the terms to

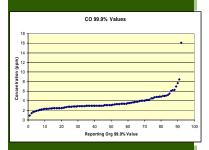
cover our other standards like flow, temperature and pressure. Mark illustrated the various mechanisms currently employed to



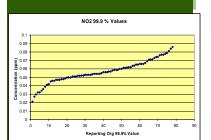
establish ozone traceability in an effort to determine what will be considered acceptable in the future. Recent discussions about when to make physical or mathematical adjustments to primary standards and/or the development of reasonable acceptance windows where no adjustments are necessary were discussed. Mark had attended a recent NIST seminar on flow certification/ calibrations and brought back some ideas on a better procedure to test flow rates that include changing the order that the flow rates are performed (high, medium, low; low, high medium etc.) as well as powering the instrument on and off during testing. OAQPS plans on further Workgroup discussions to help revise our aging guidance and to incorporate some of these new ideas. If you have an interest in helping Mark develop this new guidance, send him an email at: shanis.mark@epa.gov.

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Table

Parameter	Indicator	Issue	What the AMP255	What Appendix A	Effect
			assumes is required	Requires	
Automated PM10	Completeness	Required # How Rate Verifications	Every 2 Weeks	Once Per month	Completeness will falsely annear low
Manual DMIO and	Precision Value	Minimum Sample Value for Collocated	3-5 and 0c-011nd	PMI0 = 15: $PM2.5 = 3$	Less values will go into
PM2.5		Samples to be used in CV calculation		`	CV estimate
PMIO and PM2.5	Completeness	Semi-Amual How Rate Audit	Once per Quarter	Once every 6 months	Completeness will falsely amear low
Manual PM10,	Completeness	Collocation Sampling frequency	1 every 6 days	1 every 12 days	Completeness will
PM2.5, and Lead	1		•		falsely appear low
Manual PMI0 and	Completeness	Number of collocated sites for the PQAO	Based on a pre-2006 table with	15% of the sites in the	May not have much
Lead			the number of sites in the	PQAO	effect
			PQAO		
Lead	Completeness	Required # of Lead Flow Rate Audits	One per Year	One every 6 months	Completeness will falsely appear high
O3, CO, NO2, SO2	Completeness	Number of Audit Levels to show the	4 Levels	5 Levels	Possible loss of one
	1	upper and lower probability limits (all gases)			statistic if level 5 used
O3, CO, NO2, SO2	NA	New Audit Levels need to be	Uses "old" values (pre-2006)	Use 'new' values	No effect on data
;	;	incorporated		(222)	M. M. Stat an Asta
All Pollutants	NA	Formatting issues with upper and lower	The value should display as "(-	n/a	No effect on data
		probability limits	(x, +y)", but the program is		
			currently splitting the value		
			across two columns because of		
			the "," between "x" and "y".		



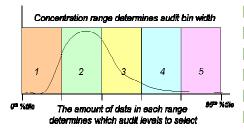




Audit Levels-Let the Data do the Talking

Since the promulgation of the October 17, 2006 monitoring rule, EPA has received some criticism on the new audit levels established for the annual performance evaluations gaseous pollutants in 40 CFR Part 58 Appendix A. The rule established one additional low level (audit level 1) but also changed the concentration in some of the other levels. These changes where made to provide audit ranges for routine SLAMS sites as well as the NCore precursor gas sites. The rule also suggested that the levels chosen should bracket 80% of the routine data. Monitoring organizations felt this was somewhat of a hardship, were concerned that the current statistics would inflate precision and bias estimates at the low concentration, and that the levels as identified in CFR did not reflect or represent their data very well. In order to address these concerns, the OAQPS QA Team proposed the following approach for consideration at the QA National Meeting:

- Each year (or appropriate period of time) assess concentrations for either
 - each site within a PQAO (Primary Quality Assurance Organization)
 - all sites within a PQAO (urban/rural split ??)
- ► Find 0-95% concentration range (95th %tile 0th %tile)
 - Removes potential outliers that would expand the bins
- Divide the range by 5 to create 5 evenly spaced concentration bins within this range
- At minimum, select the 3 bins which contain the highest amount of data (generally will be bins 1-3 or 2-4).
- AMP 255 report could be modified to determine whether these audit concentrations were selected correctly.
- CFR would not have to post ranges.



Initial comments at the QA session seemed positive. The group felt that it would be better to run this evaluation on a PQAO and not on an individual site basis (individual sites might have very skinny bins). The one issue of concern was the issue of a PQAO with fairly low concentrations at all sites that would tend to force low audit levels that might effect the precision and bias statistics. Someone suggested that the low concentration start at the MDL rather than zero. Based on these comments, OAQPS ran an evaluation on three years of valid data (2004-2006) for each reporting organization. Reporting organizations, instead of PQAOs, were used because implementation of PQAOs started in 2007 and earlier data was not labeled for PQAOs. We then aggregated the data within a reporting organization and identified the minimum value and the 99.9% value. Initially a 95% value was used to eliminate what might be considered outliers, but after realizing how many hourly values this would eliminate, we decided to use 99.9%. This would still eliminate 26 hourly values for each site over a 3 year period. For the low concentration, the minimum value was the reported routine value that was at or above the MDL for the monitor with the highest MDL for that reporting organization. A summary of the data are presented in Table I and in the figures on the left which represent the 3-year 99.9 percentile concentrations of each reporting organization.

Table I. Summary Statistics on Min and 99.9% Values by Reporting Organization

	03 (ppm)	CO (ppm)	SO2 (ppm)	NO2 (ppm)
Largest Spread	0.005 - 0.128	0.05 - 15.6	0.002 - 0.284	0.001- 0.086
Smallest Spread	0.006 - 0.043	0.001 - 0.90	0.002 - 0.004	0.005- 0.021
Average Spread	0.005 - 0.086	0.05 - 3.10	0.002 - 0.071	0.002- 0.054

The data also indicate that the audit levels currently in CFR do not relate very well to the routine data. Table 2 provides a listing of the current audit levels and the percentage of POAOs

that have sites with data in the audit level ranges. Using the 99.9% values, SO2 and CO has a small amount of routine data in audit level 4 (\sim 11% and 12% respectively). O3 and NO2 have 99.9% concentration values in audit level 3, but O3 has very few reporting organizations that have sites with concentrations in the level 3 range (\sim 4%). The data represented in the tables and figures for each reporting organization and the 5 audit bins will be posted on AMTIC in June when the evaluation work is completed.

It is not time-critical to make a change to a new audit level procedure. OAQPS plans on doing some additional work on this procedure in order to identify, for each PQAO, the three bins (out of the five) where its routine data dominate. Monitoring organizations can provide feedback over the next year on whether this approach, the current approach in CFR, or something else makes more sense. If you have comments, please email them to Mike Papp at papp.michael@epa.gov.

Table 2. Current CFR Audit Windows and % of PQAOs that have Routine Concentrations Extending into the Level

							-	•
Pollutant Concentration (ppm)								
Audit	03	% PQAO with	CO	% PQAO with	SO2	% PQAO with	NO2	% PQAO with
level		data in audit		data in audit		data in audit		data in audit
		range		range		range		range
1	0.02-0.05	all	0.08-0.10	all	0.0003-0.005	all	0.0002-0.002	all
2	0.06-0.10	99%	0.50-1.00	all	0.006-0.01	97%	0.003-0.005	all
3	0.11-0.20	4%	1.50-4.00	98%	0.02-0.10	89%	0.006-0.10	all
4	0.21-0.30	0%	5-15	12%	0.11-0.40	11%	0.11-0.30	0%
5	0.31-0.90	0%	20-50	0%	0.41-0.90	0%	0.31-0.60	0%



EPA Office of Air Quality Planning and Standards

EPA-OAQPS C304-02 RTP, NC 27711

E-mail: papp.michael@epa.gov

The Office of Air Quality Planning and Standards is dedicated to developing a quality system to ensure that the quality of the Nation's ambient air quality 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 please email us with any issues you'd like discussed.

Mike Papp

Important People and Websites

Since 1998, the OAQPS QA Team is working with the Office of Radiation and Indoor Air in Montgomery and Las Vegas 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	Person	
STN/IMPROVE Lab Performance Evluations	Eric	Bozwell
Tribal Air Monitoring	Emilio	Braganza
Statistics, DQOs, DQA, precision and bias	Louise	Camalier
Statistics, DQOs, DQA, precision and bias	Rhonda	Thompson
Speciation Trends Network QA Lead	Dennis	Crumpler
OAQPS QA Manager	Joe	Elkins
PAMS & NATTS Cylinder Recertifications	Rich	Flotard
Standard Reference Photometer Lead	Scott	Moore
Speciation Trends Network/IMPROVE Field Audits	Jeff	Lantz
National Air Toxics Trend Sites QA Lead	Dennis	Mikel
PAMS & NATTS Cylinder Recertifications	David	Musick
Criteria Pollutant QA Lead	Mike	Рарр
NPAP Lead	Mark	Shanis
STN/IMPROVE Lab PE/TSA/Special Studies	Jewell	Smiley
NATTS PT Studies and Technical Systems Audits	Candace	Sorrell
STN/IMPROVE Lab PE/TSA/Special Studies	Steve	Taylor

Websites

The following websites will get you to the important QA Information.

Website

EPA Quality Staff AMTIC AMTIC QA Page Ambient Air QA Team Contacts

URL

http://www.epa.gov/quality!/
http://www.epa.gov/ttn/amtic/
http://www.epa.gov/ttn/amtic/quality.html
http://www.epa.gov/airprogm/oar/oaqps/qa/
http://www.epa.gov/ttn/amtic/contacts.html

Description

Overall EPA QA policy and guidance Ambient air monitoring and QA Direct access to QA programs Information on Ambient Air QA Team Headquarters and Regional contacts

Affiliation

ORIA-LV

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