EPA OFFICE OF AIR QUALITY PLANNING AND STANDARDS

The QA EYE

VOLUME 1, ISSUE 1 SEPTEMBER, 2005

SPECIAL POINTS OF INTEREST:

- **Changes to CFR Part 58 Appendix A expected to be completed by September, 2005**
- **The NPAP through the probe approach is almost running at full scale.**
- **Protocol Gas Program seeing new life**

INSIDE THIS ISSUE:

1st Newsletter Hot Off the Press

Greetings and welcome to a newsletter devoted to the quality assurance aspects of the Ambient Air Quality Monitoring Program. This monitoring program, implemented by State, Local and Tribal monitoring agencies, has been collecting data on the criteria pollutants of CO, NO_2, SO_2, Pb, O_3, and PM since the 1970's. With all that's been happening in the past few years associated with the New Monitoring Strategy (see article on page 2) potential changes in the National Ambient Air Quality Standards, including a new PM coarse standard ($PM_{10-2.5}$), the OAQPS QA Team felt it was high time that a quarterly newsletter be devoted to informing QA personnel at all levels of the monitoring program. This first issue will be devoted to providing you with an update of the QA program from an OAQPS level. In the future, we hope to have articles from monitoring organizations, the EPA Regions and from some of our cooperating offices like the Office of Indoor Air and Radiation (ORIA) and the Office of Research and Development. We also plan to include letters to the editor, so if you are so inclined, please provide any comments you have about the newsletter, the articles and what you might like to see discussed in the newsletter. If you have a great story, please share it with us; we'd like to include it in our next newsletter. Information on the editors and all important websites are located on the last page. Please feel free to contact us, preferably by e-mail. We look at this newsletter as another avenue of getting important QA information into the hands of those needing to know. So if it's not fulfilling that goal, let us know.

The editors

Revival of the EPA Protocol Gas Program

(Excerpt from a paper written by Robert Wright, John Schakenbach and Scott Shanklin, EPA) Due to unexpected demands on the time and resources, assessments of EPA Protocol Gases were halted n 1998. Anecdotal information obtained after 1998 indicated that end users were becoming concerned about the quality of EPA Protocol Gases. EPA, NIST and specialty gas producers have discussed the status of the EPA Protocol Gas program over the last few years. A general consensus has arisen that the program needs to be continued to ensure that the quality of EPA Protocol Gases is maintained by those producers who supply these gaseous calibration standards. NIST has agreed to be the assessor for the program, which will ensure the credibility of the assessment results. The details of NIST's participation and of the assessment procedures, such as the procedure to obtain the standards to be assessed, still have to be developed. Only producers who participate in assessments may market these standards as "EPA Protocol Gases," although there will be no requirement for participants' assessed standards to meet a specific accuracy acceptance criterion. The costs of the assessments will be borne by the producers who elect to participate. An EPA-maintained web site will list the participants and the assessment results, which will provide calibration gas users with detailed information about the quality of EPA Protocol Gases.

EPA is in the process of revising its regulations for ambient air and source emissions monitoring, including those for cap and trade programs, to require that EPA Protocol Gases being used for regulatory purposes (page 5)

The Criteria Pollutant Network- SLAMS/ NAMS to NCore- Stable Yet Changing

Within the last 5 years, OAQPS and our partners in the monitoring community have taken a look at the implementation of the current monitoring network and have suggested some creative changes and new directions. The document entitled *National Ambient Air Monitoring Strategy* describes these changes and how the monitoring program should incorporate new scientific findings and new technologies to help answer current health and environmental questions. The *Monitoring Strategy* recommends producing more insightful data by:

- including a greater level of multi-pollutant monitoring sites in representative urban and rural areas across the Nation
- expanding use of advanced continuously operating instruments and new information transfer technologies
- integrating emerging hazardous air pollutant (HAPs) measurements into mainstream monitoring networks
- supporting advanced research level stations

A new national monitoring network design called NCore has been proposed to accommodate these recommendations and the major demands of air monitoring networks.
In place of the current National Air Monitoring Station (NAMS)/State and Local Air Monitoring Station (SLAMS) programs, NCore will establish three levels of monitoring sites:

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Level 1 – a more research-oriented platform accommodating the greatest level of instrumentation with specific targeted objectives;
Level 2 – the backbone network of approximately 75 nationwide multi-pollutant sites, encompassing both urban (about 55 sites) and rural (about 20 sites) locations;
Level 3 – additional sites, reasonably analogous to today's SLAMS sites, focusing primarily on those pollutants of greatest concern.

At the time the *Monitoring Strategy* was being developed, a Workgroup made up of QA managers from EPA and the State, Local and Tribal monitoring organizations reviewed the quality system and proposed changes and improvements which are included in the *Monitoring Strategy*. Since the Ambient Air Quality System requirements reside in 40 CFR Part 58 Appendix A, the QA Strategy Workgroup revised this document to keep what was relevant and add necessary requirements based on NCore objectives. In addition to restructuring this Appendix for readability, the following changes have been proposed:

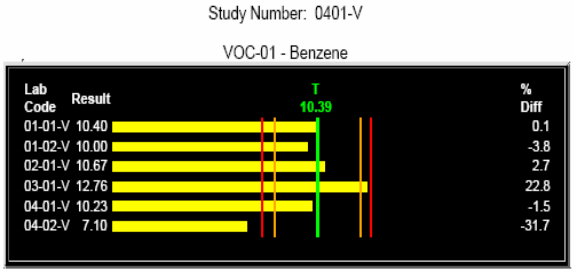
Combined APP B into APP A. Appendix B provides guidance for Prevention of Significant Deterioration (PSD) which is very similar to the Appendix A requirements.
QMP and QAPP approval. Provides more up-to-date information on quality management plans (QMPs) and quality assurance project plans (QAPPs).
Graded approach to QA. Described this process in CFR in order to provide flexibility on the development of QMPs and QAPPs.
Quality assurance lead. Provides for monitoring organizations to designate a quality assurance lead with certain QA responsibilities.
SO_2 and NO_2 manual audit checks (formally 3.4.2 and 3.4.3) - Removed these sections since the manual methods are no longer in use.
Reporting organization and primary quality assurance organization. Defines these two terms in order to clarify the organization primarily responsible for the quality of the data.
PM_{10} collocation requirement. Changed the requirement to 15% of routine sites; similar to $PM_{2.5}$
Revised Automated Precision and Bias Statistics - Changed statistics used to estimate precision and bias and will calculate them on a site basis as opposed to a reporting organization basis.

National Performance Audit Program Provides Real-Time Benefits

From 1979 to 2000, NPAP operated as a mailable audit system. In FY2001, EPA improved the audit program to a through-the-probe (TTP) system. The TTP is conducted using a self-sufficient mobile laboratory (audit van or trailer) to conduct the audits. The audit gas concentrations are generated and measured in the mobile laboratory and delivered to the station through a presentation line. This technique tests the integrity of the air monitoring station's entire sampling system. So far, 5 audit trailers and 1 audit van have been constructed and are in use in 6 EPA Regions. This year we will be starting audits in Regions 1, 2 and 3 using a roving trailer. In addition, Regions 9 & 10 share a trailer and Region 10 will be implementing audits this year. By combining the PM2.5 Performance Evaluation Program (PEP) with NPAP, we have been able to better utilize the Environmental Services Assistance Team (ESAT) contractors and provide some cost efficiencies to both programs. The NPAP audits have uncovered some problems such as leaking or contaminated inlet lines but have also reported many acceptable audits. The benefit of NPAP is that the audit can provide real-time feedback and correct problems before leaving the site. We expect to be putting our reports up on AMTIC in FY06. For more information , contact Mark Shanis at: shanis.mark@epa.gov

Toxics Proficiency Tests Completing their First Year

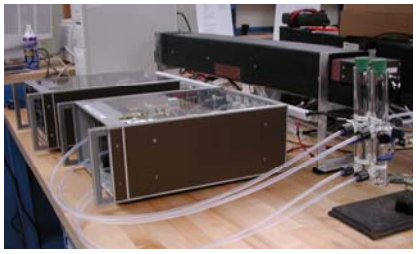
The National Air Toxics Trends Sites (NATTS) Proficiency Test Program is the newest program and started in 2004 to provide data quality information for the NATTS network. A PT is a type of assessment in which a sample, the composition of which is unknown to the analyst, is provided to test whether the analyst/laboratory can produce analytical results within the specified acceptance criteria. Separate PT samples are developed for analysis of volatile organic carbon, carbonyls and metals. In addition, at least 1 audit of each type is sent to the National Institute of Standards and Technology (NIST) for characterization in order to evaluate the contractor developing the PTs. Two audits where implemented in 2004 and four are anticipated every year thereafter. One challenge of the program is achieving full participation. OAQPS is hoping to improve the level of participation this year and will be contacting labs and EPA Regions. Results of the 2004 audits have been uploaded to the Ambient Monitoring Technical Information Center (AMTIC) . For more information , contact Dennis Mikel at: mikel.dennis@epa.gov



www.epa.gov/ttn/amtic/airtoxqa.html

The Standard Reference Photometer (SRP) is on the Move and Maybe in for a Change

Every year NIST certifies an EPA SRP located in Las Vegas and operated by the Office of Radiation and Indoor Air (ORIA). Upon certification, ORIA ships this SRP (SRP#7) to the EPA Regions who use this SRP to certify the SRP that remains stationary in the Regional Lab. These stationary SRPs are then used to certify the ozone transfer standards that are used by the monitoring organizations who bring their transfer standards to the Regional SRP for certification. Over the last 2 years, the SRP software has been updated to make the certifications easier to perform. Since the SRPs are very sensitive, shipping SRP#7 around the country is risky and requires extreme care. ORIA is currently looking at alternatives and is studying the possibility of shipping a more rugged standard that would still maintain adequate traceability to NIST. One instrument has been tested so far with good success. A new instrument is being purchased this year for additional testing and if all goes well, would be implemented in FY07. The SRP is scheduled for availability to the Tribes in mid-September in Las Vagas. For more information contact Tracy Klamser-Williams at: klamser-williams.tracy @epa.gov or Mark Shanis at: shanis.mark@epa.gov



SRP verifying transfer standards

Turbo-QAPP...Potential Turned to Reality

"Turbo-QAPP should help Tribes by providing most of our guidance within a click of a mouse."

Tribes, as are all organizations who use EPA funds, are required to develop quality assurance project plans (QAPPS) for their monitoring organization's data collection activities. However, organizations not familiar with EPA terms or with little experience in the development of quality systems have difficulty developing these documents and getting them approved by EPA. Over the past few years, OAQPS and the Tribal Air Monitoring Support Center (TAMS) have developed a number of generic QAPPs to assist the Tribes in developing project specific QAPPs. In order to make the development of QAPPs as simple as possible, EPA, in cooperation with the Institute for Tribal Environmental Professionals (ITEP), has funded the development of a software product. This software mimics the functioning of software like Turbo-Tax, to lead tribal monitoring personnel through the development of their project specific ambient air monitoring QAPPs. Turbo-QAPP should help Tribes by providing most of our EPA QA guidance within a click of a mouse. Lakes Environmental, a software development company in Canada, has been awarded a contract to develop this software with a beta version expected by the end of 2005. The software was presented at the QA National Meeting in San Diego April, 2005.

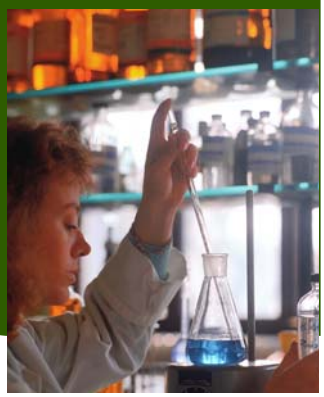
Air Monitoring Organizations Make a Good Showing at National QA Conference

"Do you know the people in this picture? They represent OAQPS, Regions and Monitoring Organizations. First one to email the editors gets a prize at the next National meeting.

For the past 24 years, EPA has sponsored a national conference on managing quality systems for environmental programs. This conference is a forum for disseminating and exchanging information on managing the quality of environmental data; discussion and action on issues of national concern; training; and technical presentations. The conference is open to all interested members of the environmental community. This year the conference was held in San Diego April 11-14. For the 4th year in a row, OAQPS has facilitated a two day ambient air QA session. The first day is devoted to ambient air presentations and it was standing room only. This year we had the NPAP audit trailer (story on page 3) on site and provided some demonstrations. The second day is a QA Strategy Workgroup session where State, Locals and Tribes meet with Regions and Headquarters to discuss pertinent issues for the upcoming year. The presentations and meeting notes have been posted on AMTIC **http://www.epa.gov/ttn/amtic/qamsmtg.html**

In addition to great discussions, a large group went out and had a great meal together! The next meeting is scheduled for Austin, Texas, April 24-27 so mark your calendars. Keep checking the EPA QA Staffs website for information.

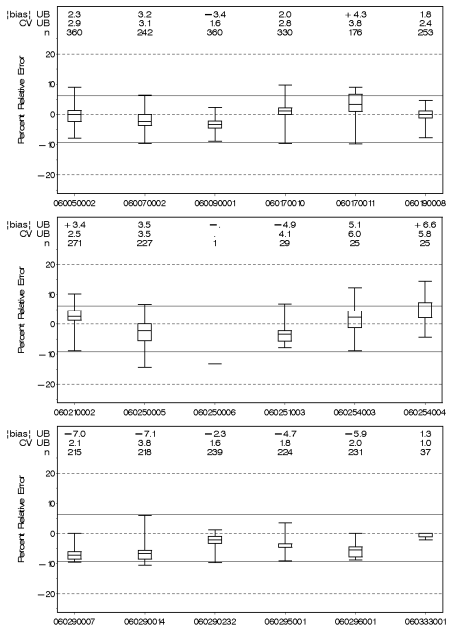
http://www.epa.gov/quality1/



Federal Advisory Committee Formed to Review the Method Detection Limit Approach

Many environmental programs, including the Ambient Air Monitoring Program, have used the method detection limit (MDL) approach described in 40 CFR Part 136 Appendix B to establish a MDL for their monitoring instrument or analytical method. There have been some questions raised about this method and its use. In order to address these issues, EPA has established a committee under the Federal Advisory Committee Act (FACA) to help improve the procedure used to calculate detection and quantitation limits. Committee members consisting of 20 stakeholders from laboratories, industry, publicly owned treatment works, states and tribes, and environmental organizations will be appointed a 2-year term to address this issue. OAQPS has a seat on the committee to follow this process. Information is available at:

www.epa.gov/waterscience/methods/det/



Have You Seen Your Precision and Bias?

Over the last 4-5 years OAQPS has been working with a QA Strategy Workgroup to improve the Ambient Air Monitoring Programs Quality System. One area needing improvement has been the method for reviewing the precision and bias (P&B) data for the criteria pollutants. As mentioned in the article on page 2, CFR is being revised to handle some new P&B statistics, and the Workgroup suggested we look at easier ways of reviewing this information than the current reports on AQS. In 2004, OAQPS worked with Battelle to generate some reports and graphics of the P&B data for the calendar year 2003. The report, which is up on AMTIC, provides the data in both an html and excel format. The html format allows one to review the data by site and reporting organization and includes a feature that allows one to click on a specific site and have the data for that site, as well as the others within the reporting organization, graphically depicted in a box and whisker plot like the one you see on the left. The excel sheets provide the same report but includes a more robust sorting feature and can then be used for other types of assessments. In 2005, funds were made available to develop these reports in AQS (without graphics) and they will be available by October as the AMP255 report. The 2003 report can be found at:

www.epa.gov/ttn/amtic/parslist.html

RTI to Input Speciation Trends Network Flow Rate Audit Data

As recently reported in the $PM_{2.5}$ Speciation Newsletter (Newsletter #2), through the implementation of technical systems audits some performance issues with the speciation monitors have been identified. In an attempt to determine the magnitude of the problem, OAQPS decided to review the monthly flow rate data and discovered it was not being reported to AQS as required in the STN Quality Assurance Program Plan (QAPP). This problem centers around the AQS requirements that one organization be given rights to enter data for a particular site. Since Research Triangle Institute (RTI) enters the routine STN data into AQS, the monitoring organization did not have entry rights for the flow rate data. A number of options where looked at and it was decided that RTI would take on the responsibility of this data entry. Each month, RTI will send out a special form that will be included with the STN filters. Site operators or auditors will need to enter the flow rate data onto this form and include it in the next filter shipment to RTI. RTI will build a software routine to add this data to AQS. It is expected that this activity will be implemented in the next 3-4 months.

"Site operators or auditors will need to enter flow rate data on this form and include it in the next shipment to RTI"

Protocol Gas (from page 1)

be obtained from those specialty gas producers who participate in the assessment program. Similarly, EPA guidance for auditing monitoring programs will be modified to direct auditors to check that calibration gases are EPA Protocol Gases when they are required to be so and that they are still in their certification periods.

EPA is beginning to revise the traceability protocol and is seeking suggestions on how it may be improved. The revised protocol may be published in the *Code of Federal Regulations* or as an EPA report. The following list contains some of the suggestions from inside and outside EPA that are being considered as revisions to the protocol:

- improve statistical procedures for calculating uncertainties of concentrations; specify acceptance criteria for the uncertainties of concentrations;
- include mercury calibration standards in the protocol;
- change the cylinder pressure limitations;
- include a procedure for analyzing and certifying zero gases;
- include gas dilution systems in the protocol;
- develop assessment participant numbers for regulatory data reporting; and
- provide for technical assistance to specialty gas producers by NIST representatives.

Quality-Related Web Sites

Federal Organizations

EPA Quality Staff	www.epa.gov/quality/
AMTIC	www.epa.gov/ttn/amtic/
Secretary of Defense	quality.disa.mil
U.S. Air Force	www.safaq.hq.af.mil/aqre/qa

EPA Information Quality and Resources Management

Peer Review Program	www.epa.gov/osp/spc/2peerrev.htm
Information Quality Guidelines	www.epa.gov/quality/informationguidelines/
Information Resources Management:	www.epa.gov/irmpoli8/
Geospatial Quality Council	www.epa.gov/nerlesd1/gqc/default.htm

Intergovernmental Data Quality Task Force (IDQTF)

Task Force Organization and Background	www.epa.gov/swerffrr/documents/data_quality/ufp_left.htm
Task Force Quality Assurance Documents	www.epa.gov/fedfac/documents/intergov_qual_task_force.htm
National Environmental Lab Accreditation	www.epa.gov/nerlesd1/land-sci/nelac/index.html

Professional Societies and Associations

American Society for Quality	www.asq.org
American Society for Testing and Materials	www.astm.org
Association for Quality and Participation	www.aqp.org
Society of Quality Assurance	www.sqa.org

Software

DataPlot - is a free, public-domain, multi-platform software system for scientific visualization, statistical analysis, and non-linear modeling. www.itl.nist.gov/div898/software/dataplot.html/

ELIPGRID - Oak Ridge National Laboratory, A program for the design and analysis of sampling grids for locating elliptical targets (e.g., contamination "hot spots"). dqo.pnl.gov/software/elipgrid.htm

EPA Great Lakes National Program Office Free interactive software on environmental topics produced by Purdue University in cooperation with U.S. EPA. www.epa.gov/glnpo/seahome/

George Mason University - Guide to Statistical Software. A comparison of commercially available statistical software. www.galaxy.gmu.edu/papers/astr1.html

OnSite - U.S. EPA Office of Research and Development, A set of online tools for site assessment contains calculators for formulas, models, unit conversion factors and scientific demonstrations to assess the impacts from ground water contaminants. www.epa.gov/athens/onsite/

Spatial Analysis and Decision Assistance - University of Tennessee Research Corporation. Free software that incorporates tools from environmental assessment fields into an effective problem solving environment. These tools include integrated modules for visualization, geospatial analysis, statistical analysis, human health risk assessment, ecological risk assessment, cost/benefit analysis, sampling design, and decision analysis. www.tiem.utk.edu/~sada/

Statlib - Department of Statistics at Cargnegie Mellon Contains data and statistical software. lib.stat.cmu.edu/

StatPages.Net - John C. Pezzullo. Contains links to online calculators, free statistical software, online statistics books, tutorials, and related resources. members.aol.com/johnp71/javastat.html

Statistics Calculators - UCLA Department of Statistics. Calculators include statistical graphs, power calculations, sample size calculations, etc. calculators.stat.ucla.edu/

Visual Sample Plan - Pacific Northwest National Laboratory Software to answer the questions - How many samples should I take? and Where? dqo.pnl.gov/vsp/index.htm

EPA Office of Air Quality Planning and Standards

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D205-02
RTP, NC 27711

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The Office of Air Quality Planning and Standards is dedicated to developing a quality system to ensure that the quality of the nations ambient air quality data is of appropriate quality for informed decision making. We realize that it is only through the efforts of our 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 e–mail us with any issues you'd like discussed.

Mike Papp & Joe Elkins

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 are: 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. See the contact website listed below for a list of the Regional contacts.

Program	Person		Affiliation
STN/IMPROVE Lab Performance Evluations	Eric	Bozwell	ORIA- Montgomery
Tribal Air Monitoring	Emilio	Braganza	ORIA-LV
Statistics, DQOs, DQA, precision and bias	Louise	Camalier	OAQPS
Speciation Trends Network QA Lead	Dennis	Crumpler	OAQPS
OAQPS QA Manager	Joe	Elkins	OAQPS
PAMS & NATTS Cylinder Recertifications	Rich	Flotard	ORIA LV
Standard Reference Photometer Lead	Tracy	Klamser-Williams	ORIA-LV
Speciation Trends Network/IMPROVE Field Audits	Jeff	Lantz	ORIA -LV
National Air Toxics Trend Sites QA Lead	Dennis	Mikel	OAQPS
PAMS & NATTS Cylinder Recertifications	David	Musick	ORIA-LV
Criteria Pollutant QA Lead	Mike	Papp	OAQPS
NPAP Lead	Mark	Shanis	OAQPS
STN/IMPROVE Lab PE/TSA/Special Studies	Jewell	Smiley	ORIA-Montgomery
NATTS PT studies and Technical Systems Audits	Candace	Sorrell	OAQPS
STN/IMPROVE Lab PE/TSA/Special Studies	Steve	Taylor	ORIA-Montgomery

Websites

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

Website	URL	Description
EPA Quality Staff	http://www.epa.gov/quality1/	Overall EPA QA policy and guidance
AMTIC	http://www.epa.gov/ttn/amtic/	Ambient air monitoring and QA
AMTIC QA Page	http://www.epa.gov/ttn/amtic/quality.html	Direct access to QA programs
Ambient Air QA Team	http://www.epa.gov/airprogm/oar/oaqps/qa/	Information on Ambient Air QA Team
Contacts	http://www.epa.gov/ttn/amtic/contacts.html	Headquarters and Regional contacts