EPA OFFICE OF AIR QUALITY PLANNING AND STANDARDS

The QA EYE

ISSUE 10

DECEMBER, 2010

SPECIAL POINTS OF INTEREST:

- **QA Handbook Volume II under revision**
- **47 MM MTL filters passing tests**
- **Schools getting involved in community monitoring**

INSIDE THIS ISSUE:

Expanded Audit Levels Provide Relief and Questions

A November 10, 2010 memo from EPA has allowed for the expansion of the audit levels for the annual performance evaluation audits for the 4 gaseous criteria pollutants from 5 levels to 10. This memo can be found on AMTIC at: http://www.epa.gov/ttn/amtic/cpreldoc.html. With the expansion to ten audit levels and the reduction of the concentration span within each audit level, the memo allows audit levels to be skipped while still auditing a minimum of three levels.

The new audit levels will have an affect on AQS. Currently, AQS supports the reporting of data in five audit levels as is currently published in CFR. For the near-term, there will continue to be five levels, but the concentration ranges of these five existing audit levels will change. The new concentration ranges defined within AQS will match the first four levels described in the November 10, 2010 memo (table on right), while the fifth level in AQS will encompass levels 5 – 10.

In the future, AQS will be revised to accept /evaluate all 10 levels. Expanding the number of audit levels will also affect AQS reports (e.g., AMP255 Data Completeness). Once fields for levels 6 - 10 are available in AQS, any performance evaluation (PE) concentration data that is submitted to AQS and that is associated with the new levels will be properly reported in the AMP255 report.

EPA has requested that monitoring organizations attempt to implement the 1-point quality control checks (40 CFR part 58 App A Section 3.2.1) and the annual performance evaluation audits (40 CFR part 58 App A Section 3.2.2) at concentration ranges that are similar to the ambient air concentrations they are measuring in their networks. With the implementation of trace gas monitoring in the NCore network and the reduction in ambient air pollutant concentrations, following this guidance will require monitoring organization to lower the audit concentrations for these quality control checks.

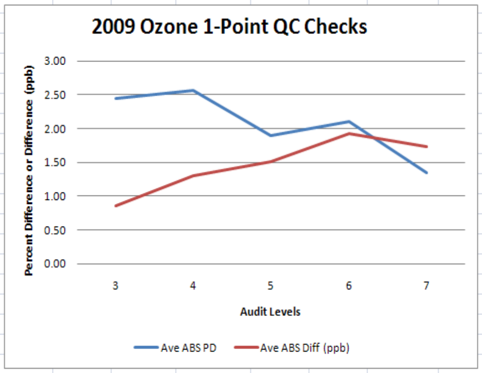
Data assessments have shown that monitoring organizations should be selecting audit levels at lower concentrations. However, the monitoring organizations have concerns that lowering audit ranges will create large, unreasonable percent differences if the CFR statistics and current acceptance limits are used. They are suggesting that EPA look to a different statistic at these lower audit ranges.

EPA has started evaluating the 2008-2010 data in AQS to determine at what concentrations we need to be concerned that the use of percent difference will provide a false impression of large variability.

Continued on Page 2

Audit Level	Concentration Range, ppm			
	O_3	SO_2	NO_2	CO
1	0.004-0.0059	0.0003-0.0029	0.0003-0.0029	0.020-0.059
2	0.006-0.019	0.0030-0.0049	0.0030-0.0049	0.060-0.199
3	0.020-0.039	0.0050-0.0079	0.0050-0.0079	0.200-0.899
4	0.040-0.069	0.0080-0.0199	0.0080-0.0199	0.900-2.999
5	0.070-0.089	0.0200-0.0499	0.0200-0.0499	3.000-7.999
6	0.090-0.119	0.0500-0.0999	0.0500-0.0999	8.000-15.999
7	0.120-0.139	0.1000-0.1499	0.1000-0.2999	16.000-30.999
8	0.140-0.169	0.1500-0.2599	0.3000-0.4999	31.000-39.999
9	0.170-0.189	0.2600-0.7999	0.5000-0.7999	40.000-49.999
10	0.190-0.259	0.8000-1.000	0.8000-1.000	50.000-60.000

Audit Level Expansion (*Continued for page 1*)



1 Point QC	Audit Level	Audit Level Conc (ppb)	Number of Pairs	Ave ABS PD	Ave ABS Diff (ppb)
	1	4.0-5.9	0	NA	NA
*	2	6.0-19	0	NA	NA
*	3	20-39	70	2.44	0.86
*	4	40-69	918	2.56	1.31
*	5	70-89	27737	1.89	1.52
*	6	90-119	26184	2.10	1.93
	7	120-139	45	1.35	1.74

As an example, the graph/table to the left show the 2009 ozone 1-point QC check data. For each pair of values, the absolute value of the percent difference was calculated, as was the absolute value of the difference between the measured and audit value. Since we would be aggregating/averaging data by audit levels, absolute values were used to avoid "cancelling out" positive and negative PDs. The data was aggregated by the new audit value levels. For the 2009 ozone data, there were no audits at levels 1,2, 8, 9, or 10. CFR requires 1-point checks that corresponded to audit ranges 2-6 (10-100 ppb). Although we know that monitoring organization networks have sites monitoring in the 6-19 ppb range, no one was auditing at that level so it is difficult to assess what effect the PD would have at this level or level 1 without some data. However, percent difference at levels 3 and above are well within the 7% acceptance criteria for ozone. EPA is aware that the NPAP audits at the NCore sites using lower level audit concentrations are having difficulties meeting the percent difference acceptance criteria and we believe that 1-point QC checks or performance evaluation audits at levels 1 and 2 will run into these problems. EPA is performing some additional evaluations and data simulations and will be providing a preliminary report in January.

Ambient Air Protocol Gas Verification Program Wraps up for the Year-Improvements on the Way

Region 2 AA-PGVP System

Thien Bui (Region 7) and Joe Elkins (OAQPS) during AA-PGVP System Audit

The first year of implementing the Ambient Air Protocol Gas Verification Program was a success. The EPA Regions 2 and 7 laboratories ran well and the verification results were very good. We are currently performing the final review of all verification data for a March Report. During the final quarter of the year we invited all the gas producers to an open house of both laboratories. We had Airgas, Linde Gas, Specialty Gases of America and Liquid Technology Corporation take us up on the offer. It appears that the open house was well received by the vendors. In addition, Bob Davis from Airgas is writing an article on the AA-PGVP (along with the Source Program) in the next publication of Pollution Engineering.

We are planning on making some improvements this year to help the program achieve the goal of surveying all the monitoring organizations for participation. RTI is working on a web-based survey that is easier to use and reduces the number of fields to enter. Some of the information can be selected from a pick list that has been developed from this years data in order to make entry simpler error free. Once we have a point of contact for each monitoring organization, we will be sending out email notifications on a frequent basis to those organizations that have not completed the survey. We are doing this to ensure we capture all possible vendors that are being used by the monitoring community and need to participate in this program. So, get your survey in early to avoid being badgered. Unfortunately, we did not get 100% completeness on our surveys last year and we also did not receive a cylinder from every production facility used by monitoring organizations. Our final report will provide information on completeness. We hope to do better next year.

We want to thank all those who participated in the program this year. They include:

Missouri DNR
Texas CEQ
State of Utah
Maricopa County
Maryland DOE
Hamilton County DES
State of Florida DEP
Kansas Dept of Health
MN Pollution Control Authority
Southern Ute Indian Tribe
Cook County DEP
State of Maine
South Coast Air Quality District
EPC of Hillsborough County
NC Dept of Nat. Resources

We look forward to many more participants next year. We will be emailing every point of contact with survey instructions and posting a verification schedule on AMTIC in January.

Optical Remote Sensing Handbook being Finalized

EPA OAQPS QA staff are currently finalizing a optical remote sensing (ORS) Handbook. It is intended as a guide for those planning to use or review remote measurement approaches and those who need current information concerning the technologies and applications as they build expertise in these types of measurements. For the purposes of the Handbook, "remote sensing" is defined as any measurement of emissions conducted at a point or area away from the point or area where the pollutant is emitted. As our air quality management programs evolve, we need more measurements of non-point or unvented sources, often referred to as fugitive sources or emissions. Remote measurement approaches offer an approach to measuring challenging emissions sources.

The information presented in the Handbook will be written to be accurate and informative, as well as more "user friendly" than the technical papers or review articles found in the open literature. Practical information is provided for those not trained in spectroscopy or other remote measurement technologies, but who need to understand the principles behind the use of these technologies and their applications so they can better understand the uses and limitations of the data generated. The purpose of the Handbook is to describe the primary remote measurement technologies and approaches currently in use and how potential users can assess the applicability of remote measurements and data to their emissions measurement needs. The more prevalent open path and point measurement technologies used to make remote measurements are described in order to provide a background for the application of remote measurement techniques for emissions measurements. The draft document is available at: http://www.epa.gov/ttn/emc/.

QA Activities for the National Air Toxics Trends Stations

The National Air Toxics Trends Station (NATTS) network was established to create a database of air quality data to assess progress in reducing ambient concentrations of air toxics and concomitant exposure-associated risk. The NATTS network consists of 27 stations in the contiguous 48 states. To ensure the quality of the data collected under the NATTS network, EPA has implemented a Quality System comprising two primary components: 1) Technical Systems Audits (TSAs) and 2) Instrument Performance Audits (IPAs) for both the network stations and the associated sample analysis laboratories. As an integral part of the Quality System, U.S. EPA has also instituted periodic analysis of proficiency testing (PT) samples to provide quantitative assessment of laboratory performance and to ensure that sampling and analysis techniques are consistent with precision, bias, and method detection limits specified by the NATTS measurement quality objectives (MQOs). Quality assurance (QA) activities for the NATTS program are listed below.

- Technical System Audits were conducted in Regions 1, 9 and 10;
- Precision estimates for analytical and overall sampling error computed for many of the compounds and for as many of the 27 NATTS sites as available for calendar year (CY) 2008;
- Evaluation of an analytical laboratory's accuracy (or bias), based on analysis of blind audit PT samples for many of the 27 compounds for CY 2008
- Additionally, field bias data, from the differences between actual and measured sampler flow readings for each of the four different sampler types associated with VOCs, carbonyls, PAHs, and PM_{10} metals, are presented for primary and collocated samplers (where available) at three sites visited during the IPAs conducted during CY 2008;
- Method detection limit (MDL) data are presented for each site and/or analytical laboratory for CY 2008.

All of this information is summarized in the QA Annual Report (QAAR) for 2008 and is posted at: http://www.epa.gov/ttn/amtic/airtoxqa.html Please contact Dennis Mikel at: mikel.dennisk@epa.gov

More Information on the New MTL 47-mm Filters

In April 2010, MTL was awarded the national filter contract to supply 47mm Teflon filters for the particulate matter monitoring programs. The MTL QAPP was approved and the first order placed in July 2010 with an expected delivery to EPA on December 16, 2010. Official acceptance testing is expected to be completed in January and shipment to monitoring agencies by February 1, 2011.

There are some differences between the current supply of Whatman filters and the filters from MTL. For starters, the mass of the filter is around 400 mg compared to Whatmans' 150 mg. Because of the difference in weight, EPA is suggesting that monitoring organizations purchase another balance check standard somewhere in the 400-450 milligram range. There are vendors that can make these standards at reasonable prices. Some other differences in the MTL filters compared to the Whatmans are listed below along with some initials results of testing that we have conducted.

Support Rings

- Chemical constitution is PTFE with a small amount of PFA (poly fluoro-alkoxy) copolymer; Whatman filters are fitted with PMP (poly methylpentene)
- PTFE/PFA rings are more rigid--designed to prevent the "Pringle" effect which contributes to inaccurate mass measurements.
- Ring thickness is within specifications of contract and 40 CFR 50 App L, but it is thicker than the PMP rings on Whatman filters.
- PTFE/PFA ring compressibility should be theoretically much lower than PMP
- Serial numbers will not adhere to ring material. The torque from coupling or decoupling the cassette removes the serial number completely

Filter ID Serial numbers and bar coding

- MTL claims black bar code matrix is pure carbon applied from liquid suspension
- Can be in form of Alpha numeric characters placed in a linear or arc-shape configuration near the edge of the filter, or a bar code. Any of the configurations are readable, but the readers are expensive. The arc-shape reader requires an extra instrument.
- EPA has directed MTL to print the arc-shaped alpha-numeric on both sides
- EPA's support lab (NAREL) has not been able to detect an appreciable difference in mass between filters with ID numbers and those without.
- MTL test results for pressure drop and collection proficiency are acceptable

Initial Evaluations

We have sent filters to NC, SC, GA, FL, IA, and UT, for field testing in R&P and Thermo 2025 Partisol samplers

- Gravimetric comparisons thus far are excellent
- Mechanical problems have been non-existent except in old R&Ps in SC

Additional Analyses

- NAREL will analyze filters for carbon and raw ink for metals
- NAREL and Region 9 digest filters and conduct ICPMS for metals and especially Pb
- XRF Analysis by ORD, RTP—preliminary results are no trace minerals.

We hope to have results on some of the additional tests by the end of the year or in early January.

Method Detection Limits-Who Needs Them!...One Mans Opinion

Have you ever purchased a new car without driving it? Have you taken the EPA mileage estimate for granted or do you fill up and test the mileage at least for the first few tanks? Most do it for quite a while. If you were buying a used car most of us would go to our **independent** local mechanic to determine how well the car is running prior to purchasing.

Similarly, our monitoring programs do not take the word of the instrument manufacturers claim on the repeatability or accuracy of their instruments. We run our various QC checks to determine precision and bias because we know over time the manner in which we operate the equipment has an effect on these data quality indicators. Yet, when it comes to detection limits, for some reason we seem to take the manufacturers word on the sensitivity of the instruments and many use the default detection limits in AQS as their instrument specific detection limit.

Based on the objectives of the NCore, it is expected that most sites will be measuring pollutant concentrations at lower ranges than the typical SLAMS network. Therefore, the ability to quantify concentrations at these lower levels will be very important. The use of a vendors advertised lower detectable limit (LDL) in order to make intelligent purchasing decisions is one thing; to use it as a default MDL for the monitoring network is another.

Vendors quantify LDLs under ideal conditions and therefore one might consider this value as the best possible detection that can be achieved. As these monitors are deployed into monitoring networks, where both environmental conditions (temperature, pressure, humidity, contamination), equipment (calibration, dilution devices, sampling lines, gaseous standards) and operator activities can vary, it is important to know what pollutant concentrations can truly be detected, above background noise (the potential conditions mentioned above). The site specific MDL establishes a value which is based on the routine operation (and conditions) of that instrument in the network and provides a more meaningful evaluation of data as it is aggregated across the NCore network. Using a default detection limit value would provide data users with a false sense as to whether certain concentration values were truly quantifiable at a site(s). By establishing site specific MDLs, values less than the MDL can be flagged providing data users a more informed decision on the use of that data. In addition, a comparison of MDLs across the NCore network would allow for fruitful discussions on the instrumentation and the comparability of results among the sites; something that would not occur if a default detection limit was used.

EPA has been advocating the assessment of MDLs at NCore site prior to monitoring and on an annual frequency. EPA defines MDL as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." The MDL procedure can be found in 40 CFR Part 136 Appendix B. The MDL would be more relevant to the detection at the site versus what a manufacturer might test and report to EPA.

In general, all MDLs are defined in terms of a multiple of the *standard deviation* of measurements on blanks or a sample that has been spiked with very low concentrations of the analyte of interest. The regulation calls for measuring a standard 2.5-5 times around the theoretical MDL. For NCore, EPA suggested measuring 20-25 one-minute observations (averaged to one value), repeated 7 times over the course of 5 -14 days and then calculating the standard deviations of the 7 replicate measurements. The MDL is computed as:

$$MDL = t_{.01,(n-1)} \cdot s$$

Where $t_{.01,(n-1)}$ represents the 99th quantile of a Student's t distribution with (n-1) degrees of freedom and n represents the number of replicate measurements. Refer to the table in 40 CFR Part 136.

EPA is aware of the concern by monitoring organizations to perform this MDL. The process calls for the purchase of low concentration standards that may be used very infrequently and have a short shelf life. EPA had suggested the national purchase of low concentration tri-blend standard (25 ppm CO, 1.0 ppm SO_2, 1.0 ppm NO in N_2) cylinders that could be shared by a number of monitoring organizations performing the MDL test. We did not get a positive response to this suggestion but it could be considered in the future.

In addition, monitoring organizations may want to confirm the flow of their mass flow controllers (MFCs). There are some NIST traceable devices on the market that can perform this task. Although the gas MFC (typically a 0 - 100 cc/min) should not be used for routine work under 10% of its range, our experience so far is that they can be used reliably. Experience with both Hastings and Tylans do seem to operate well below 10% of FS.

EPA performed the MDL tests at the EPA AIRS site in 2006. We used a low concentration gas cylinder from Scott-Marrin and a continuous low range flowmeter, the Zephyr 500HR Digital Gas Flow Meter that is used for measuring flow in gas chromatography which provides accurate real-time measurements for all gas streams. An example of our NO MDL is below:

The noise was stated by the manufactures as 0.025 ppb (120 sec averaging). We used 5 times this for the MDL concentration.

5 x 0.025 = 0.125 ppb , or 0.000125 ppm

Since the NO gas standard is 1.000 ppm

0.000125 = [(gas cyl conc) x (gas MFC cc/min)] / (za MFC cc/min)

determine gas MFC by calculating
(0.000125)(20,000) / 1.00 ppm
gas MFC is 2.5 cc/min

Our initial estimate of the MDL for the TECO was 0.050 ppb and 0.058 ppb for the API; higher than the manufacturers stated noise of 0.025 ppb.

EPA realizes that the estimating the MDL is not a requirement. We do believe it is a meaningful procedure that should be undertaken minimally at the start of monitoring. It would be best to perform the test under field conditions but performing it in a lab is better than not performing it at all.
Just one mans opinion.

QA Strategy Workgroup Completes First Call on QA Handbook Revisions


EPA
Quality Assurance Handbook for Air Pollution Measurement Systems
Volume II
Ambient Air Quality Monitoring Program

EPA is embarking on a revision to the *QA Handbook of Air Pollution Measurements Volume II Ambient Air Quality Monitoring*. This Handbook was revised in 2008 but with all the additions and revisions to monitoring activities, we think revising the document on a 3-4 year cycle is a better way to keep the information current. We plan on reviewing the document 4 sections at a time and having a conference call every quarter. Word versions of each section and Appendix are posted on the QA Review page on AMTIC at http://www.epa.gov/ttn/amtic/qareview.html. Reviewers can edit and add comments to the sections using the track changes command and send them on to EPA. EPA will aggregate all the comments and use the conference call to address any comments needing additional discussion or decisions.

The QA Strategy Workgroup had its first conference call on Sections 0-4 on December 15. We received good comments on the sections and we plan on completing edits to them by the end of January. EPA is soliciting for comments/edits on sections 5-8 which are due to EPA March, 4 in order to prepare for a March, 17 conference call. Any monitoring organizations wishing to provide comments or interested in participating on the call can email Mike Papp at: papp.michael@epa.gov

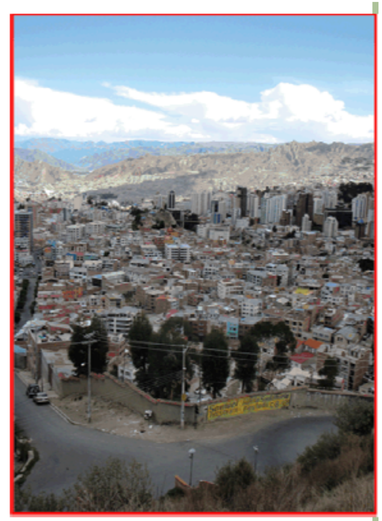
EPA Region 8 Audits Bolivian Air Monitoring Network

Adam Eisele (second from left) and Red MoniCa consortium members at a continuous air monitoring station in Santa Cruz, Bolivia

Adam Eisele from EPA Region 8 travelled to South America last November to conduct a technical systems audit of the ambient air monitoring network operated in four of the most populated cities in Bolivia. This audit was coordinated through EPA's Office of International and Tribal Affairs and Swisscontact, a non-profit organization based out of Switzerland. The cities of Santa Cruz, Cochabamba, La Paz, and El Alto monitor air quality under the Red de Monitoreo de la Calidad del Aire, referred to as Red MoniCA network. Red MoniCA consists of passive (ozone and NO2) and active (ozone, NOx, CO, SO2, and PM10) samplers operated from the Amazon Basin up to an elevation of 13,500 feet. Red MoniCA was initiated in 2005 and is managed by a consortium of local universities, a non-profit organization, and government municipalities.

Rough, mountainous terrain coupled with an aging fleet of high emitting vehicles create unique air quality challenges throughout densely populated urban areas of Bolivia. A lack of environmental regulations or enforcement actions provides an added challenge towards achieving clean air. The Red MoniCA cities strive to achieve the World Health Organization Air Quality Guidelines, which are more stringent than EPA's NAAQS. Voluntary programs such as vehicle emissions testing and Bike-To-Work Day have been implemented with increasing success.

The audit focused on network operation/management, laboratory operations, and data management. A number of the 44 Red MoniCA monitoring sites were visited throughout the audit, in addition to each city's analytical laboratory. Key findings of the audit were included in a technical report that EPA Region 8 submitted to Swisscontact. The report is being used as a planning tool for the future direction of Red MoniCA. Swisscontact expressed interest in a follow-up visit to conduct performance audits of the continuous monitors of Red MoniCA.



The high-altitude city of La Paz, surrounded by the Andes Mountains

Monitoring Organizations Opt for National Development of Pb Audit Strips

This year, as EPA was contacting the monitoring organizations sampling for Pb in order to provide shipping labels for their collocated samples that were to be sent to the Region 9 PEP laboratory, we asked whether the organizations wanted EPA to develop Pb analysis audits (Pb audit strips) for the upcoming year. Pb analysis audit strips are required in 40 CFR Part 58 Appendix A Section 3.3.4.2. We received orders from 17 monitoring organizations (about 45% of those polled) for the audits needed for 2011. RTI, EPA's QA contractor, completed development of the audit strips in December and has sent out three sets to the referee labs: Region 9 Pb PEP Lab, the Region 7 Air Monitoring Lab, and the Office of Radiation and Indoor Air for testing. Once the strips pass acceptance testing, the monitoring organization labs will receive the years supply in one shipment at the end of January. Any laboratories interested in receiving Pb strip audits for 2012 should contact Mike Papp at: papp.michael@epa.gov

Relevant Monitoring Meetings and Training Scheduled for 2011

The following is a list of ambient air relevant meetings developed by Meridith Kurpius, the EPA Regional Office Ambient Air Monitoring Lead.

EPA

AirNow Meeting with air monitoring track
March 7-10
San Diego

Air Toxics Conference
April 4-7
Dallas, Texas

NPAP and PEP Audit Training
April 18-20
RTP, NC

NACAA Monitoring Steering Committee
May (TBD)
Burlington, VT

AQS Conference
Late September
Pensacola, FL

IMPROVE Steering Committee
Fall (TBD)
TBD

Air Monitoring Conference (includes QA track)
Early November
Venue TBD

Non-EPA

AWMA (Air Waste Management Association)
June 21-24
Orlando, FL

AAAR (American Association of Aerosol Research)
Mid-October (TBD)
Location TBD

AGU (American Geophysical Union)
Early December
San Francisco

Atmospheric Chemical Mechanisms Conference
Early December (before AGU)
Davis, CA

Comments and Issues about the QA EYE

If you have any comments on the articles you read in this Newsletter or would like to see different types of articles let us know. We'd love to post your comments to try to keep this Newsletter somewhat interactive. In addition, we are always looking for articles from the EPA Regions and monitoring organizations related to the development of quality systems, new QA techniques and assessments. We try to get a QA EYE issue out every 4 months so provide us some feed-back or an article you'd like posted to papp.michael@epa.gov

Community Monitoring- The GO3 Project Brings Ozone Monitoring to Schools Around the World

Students measure ground level ozone outside Erie High in Erie, Colorado.

In the age of copious amounts of data stored online and available for public use, many K-12 teachers are required to have their students work with and analyze real-world data. However, teachers report improved impacts on learning and more meaningful connections when the students themselves are responsible for collecting the data that they are analyzing.

With his 25 years of experience as an atmospheric chemistry, Professor at the University of Colorado, Dr. John Birks has first hand experience with the positive effects hands-on projects have on student learning. Necessitated by the research he was performing at CU, Dr. Birks developed a small, portable ozone monitor which was further developed and commercialized at 2B Technologies, a company he co-founded. Several years later, and with a fleet of almost 1,000 instruments being used by scientists around the world, Dr. Birks began to contemplate involving K-12 students in ground level ozone research. Thus, the Global Ozone (GO3) Project was born.

Two years later, there are over 70 schools worldwide participating in the GO3 Project and more than 300 schools on the waiting list. The GO3 Project supplies each school with the tools they need to measure ozone and meteorological parameters and includes a computer pre-loaded with software that automatically uploads their data to Google Earth. The public can also view and compare their data at the GO3 website (www.go3project.com), through online graphing and downloading tools.

In addition to the GO3 Package, the project provides teachers with a fully developed curriculum, instructional manuals, videos, and other learning and support tools. In order to foster global collaboration amongst the students, the GO3 Project created a social networking site similar to Facebook where students can communicate. Many US schools are linked to international sister schools, and the social network is where they connect to compare data and discuss pollution reduction strategies.

The GO3 Package includes a UV-absorbance-based ozone monitor (2B Tech Model 106-L), Davis weather station and netbook computer with software that automatically uploads data to Google Earth

The development of the portable ozone monitor made it possible to involve students in ozone research, interacting with the same instruments scientists use. The GO3 instrument (2B Tech Model 106-L) is currently being evaluated for EPA designation as a Federal Equivalent Method, and its sister model, the 202, is already an FEM. By using the 2B Tech instrument, the students are able to supply the world with accurate and useful data, giving them a strong sense of purpose in their projects.

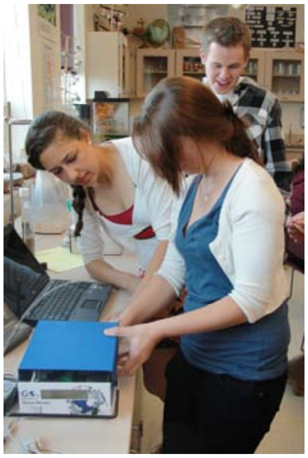
The students install their ozone monitoring stations with a detailed instruction manual, taking into account best practices in monitor placement as feasible. To maintain the quality of reported data, the GO3 schools are required to calibrate their ozone monitors once per year with a 2B Tech Model 306 Ozone Calibrator. The calibrator is sent to schools, where they can learn about and perform their own calibrations. They are also required to replace the flow path with a new ozone scrubber, cell and tubing every year. Resources are under development for schools to log all the maintenance and calibration procedures they perform, so GO3 Staff can track and flag data from sites that have not performed their required maintenance.

Recently, EPA's AIRNow program piloted a study with Sonoma Tech to analyze data from five Colorado GO3 sites. They used 1-hour maximum ozone concentrations for July 15th, 2010, and found that:

- Including the GO3 data reduced both the Mean Interpolation Error and the Root-Mean-Square Interpolation Error.
- The GO3 data helped with the uncertainty of AQI estimations in areas without monitors reducing the Predication Standard Error near the monitors and also across the domain.

Continued on Page 9

GO3 Project *(Continued from page 8)*



- The student collected data agreed well with nearby AIRNow sites, using data collected from February through August 2010.

As a result of this study, the pilot is being expanded, with GO3 reporting their data into AIRNow, where it will go through the same quality checks performed on all AIRNow data. The study will also assess the feasibility of including GO3 data in AIRNow products, including AQI maps, to enhance and improve ozone reporting and prediction in the US and beyond.

The project is growing quickly and expects to have 1,000 schools worldwide collecting and sharing ground level ozone data in the next three years.

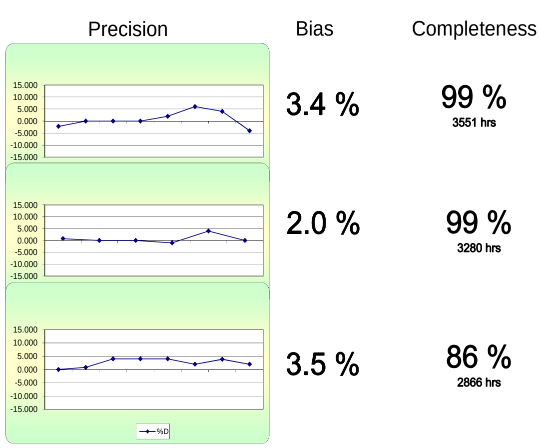
If your agency is interested in helping students start the GO3 Project at their school, please contact Jessa Ellenburg at jessae@go3project.com.

Washington State's use of Portable Ozone Monitors

The cost of establishing a conventional air monitoring site can be significant. Modeling conducted for the Washington State Network Assessment identified regions showing the potential to exceed NAAQS ozone standards. The cost to monitor at these locations to investigate model uncertainty was prohibitive and the time to establish a monitoring site lengthy.

The recent EPA designation of small, low powered equivalent methods like the 2B Tech provides the flexibility for agencies to collect the same quantity and quality of data for a fraction of the cost of conventional methods. By following basic measurement quality objectives, these small, low powered instruments can fill a unique niche (recognized by the National Park Service and United States Forest Service) for use in remote locations.

This summer these instruments were used to measure ozone in an effort to demonstrate ozone attainment, investigate an ozone model "hotspot" and measure background ozone concentrations for permitting purposes, all done for one tenth the cost of establishing a conventional air monitoring site. All of the analyzers used in the surveys met the measurement quality objectives (MQOs) outlined in a quality assurance plan providing decision makers the confidence to make a judgment.



The Southwest Clean Air Agency is sponsoring Jason Lee Middle School's (Vancouver, Washington) participation in the GO3 Project (see page 8). Students at the school will be monitoring ground-level ozone pollution and learning about air pollution, the ozone layer and global warming. The Southwest Clean Air Agency is providing the funding for the monitoring equipment and the Global Ozone Project is providing the technical assistance and framework to connect this program worldwide. Students collect data and upload it to Google Earth where they can compare results with students around the world .

The Southwest Clean Air Agency will use this program for public outreach, teaching students, parents and faculty about ground-level ozone pollution. The Agency plans on sharing the results of this project with the community and may use the data for more insight into local air quality and pollution prevention.

NPAP Progress and Training Activities

Data Reporting

For the first time since EPA started posting the TTP audit data on AQS, the data for the year was submitted to OAQPS by November of the same audit year. The audit data pre-screened for entry errors prior to loading into AQS before the end of December. The error lists were distributed to the appropriate Regions and the corrections have about finished coming in. Next, all the 2010 results will be posted on AQS.

Training

EPA posted the remote and hands-on certification/recertification TTP sessions on AMTIC and performed the 2011 remote training in December, 2010. Attendance was the largest to date with around 37 attendees, including Regional EPA, ESAT contractors, State/Local/Tribal agencies and representatives of two potential PSD contractors. The 2.5 hour long webinar session was recorded, and went through the agenda, SOPs, associated on line issue materials and issue discussions. Hands-on training is scheduled for April 18, 2011. For contact information for potential new trainees (PSD, etc.), see the Audit Training Schedule notice on AMTIC: http://www.epa.gov/ttn/amtic/npepqa.html

Trace Level CO and SO2 Audits and NOy Audit Method Development

The eastern trace level (TL) TTP audit system has been moved from Region 4 to Region 3 following a training session in RTP with Region 3 in August. Region 3 has completed its first TL CO and SO2 audits and will be providing the results and case-based comments in January. The western TL TTP gas audit system, based in Las Vegas, is ready for certification. Arrangements for that step are being discussed. Once this step is completed the system will be deployed for audits in Region 9. NOy audit method development is about finished. Initial Regional tryout should occur in 2011.

The Standard Reference Photometer Saga and Ozone Transfer Standard Guidance

The SRP Saga

EPA has had some trouble with both SRPs (1 and 7) housed in RTP which has caused some unforeseen delays to the regional certification process. SRP-7 lost a motherboard which has been replaced and is working. While SRP-7 was inoperable, EPA attempted to send out SRP-1 but the photometer cell broke when the SRP was sent to R7. This SRP shipment was the first time the new traveling case that was made for the photometer was used. The case has gone back to the manufacturer for modifications and additional protection. So for some time in October and November, both RTP SRPs were out of commission. To make things a little more difficult, EPA had some issues to overcome with the current interagency agreement (IAG) with NIST in order to get the two RTP SRPs re-validated once the repairs were made. All these problems have just been rectified. The re-validation of SRPs 1&7 are scheduled for January 3-7, 2011. Scott Moore (ORD) plans to ship SRP-7 straight from NIST to Region 7 and then on to Regions 6, 1 and 5.

Ozone Transfer Standard Guidance Finalized

The technical assistance document: *Transfer Standards for Calibration of Air Monitoring Analyzers for Ozone* was completed as a final draft in May, 2009. EPA delayed finalizing the document in order to assess a new statistic that would evaluate and aggregate measurement uncertainty as the standards were challenged from one level to the next. If the statistic was found to be useful, EPA planned to include it in the draft before it was finalized.

RTI has developed an uncertainty statistic that EPA has distributed for review. The paper has had a number of internal and external reviews, including NIST, and the statistic appears to be accepted. However, due to the review delays and the need to test the statistic with addition transfer standard data, EPA finalized the transfer standard document in November without the uncertainty estimate and has posted it on AMTIC at: http://www.epa.gov/ttn/amtic/qapollutant.html

Authors Contributing to Issue 10

We thank the following for contributing to Issue 10 of the QA EYE: Donovan Rafferty, Washington State Dept of Ecology, Kathy Finkle Southwest Clean Air Agency and Jessa Ellenburg of the GO3 Foundation for the ozone community monitoring articles (page 8 & 9); Adam Eisele, EPA Region 8, for the Bolivia TSA article (page 6); Dennis Mikel, OAQPS, for the remote sensing and NATTS articles (page 3); Dennis Crumpler, OAQPS, for the information on the MTL filters (page 4); and Mark Shanis for the update of the NPAP program

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 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	Person		Affiliation
STN/IMPROVE Lab Performance Evaluations	Eric	Bozwell	ORIA- Montgomery
Tribal Air Monitoring	Emilio	Braganza	ORIA-LV
Statistics, DQOs, DQA, precision and bias	Rhonda	Thompson	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	Scott	Moore	ORD-APPCD
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
PM2.5 PEP Lead	Dennis	Crumpler	OAQPS
STN/IMPROVE Lab PE/TSA/Special Studies	Jewell	Smiley	ORIA-Montgomery
STN/IMPROVE Lab PE/TSA/Special Studies	Steve	Taylor	ORIA-Montgomery

Websites

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
Contacts	http://www.epa.gov/ttn/amtic/amtic_contacts.html	Headquarters and Regional contacts