Monitor Audits on the Cheap

One crucial component of an air monitoring program is "monitoring the monitors." Regular audits verifying the accuracy of data generated by NAAQS monitors are crucial for assessing air quality. They're also required to satisfy quality-assurance standards mandated by U.S. EPA, for determining attainment standards and for entering data into the national Air Quality System database.

Auditing is expensive—contractors generally charge a minimum of $2000 for the service, not including travel costs. The yearly hit for a small tribe with multiple monitors can be a huge bite out of the yearly air budget.

There is a way for tribes to significantly lower the cost of auditing; sadly, the option is not as widely known as it should be. Primary Quality Assurance Organizations (PQAOs) represent a method by which several air-monitoring entities can band together and, after satisfying standardized quality control and other requirements, dramatically reduce the number of audits required each year.

The savings could be dramatic, says ITEP/TAMS Center Research Specialist Melinda Ronca-Battista. “If a tribe is doing all the audits itself and they have just one or two sites, that could be a third of their budget. But if they collaborate in a PGAO and share those costs, it could be a fifteenth of their budget.”

PGAOs reduce audit costs by allowing for representative audits to verify the accuracy of all identical equipment operated within the collective. For example, where a non-PQAO-affiliated tribe must audit its two PM$_{2.5}$ monitors quarterly (at $4000+ per quarter), a tribe belonging to a PQAO whose members run a total of 20 monitors will pay just their share of a single audit per quarter (closer to $200).

The rules for PQAOs are straightforward and relatively easy to satisfy, particularly for tribes who use two software tools designed specifically for tribal air programs, the “Tribal Data Toolbox” and “TurboQAPP.” Tribes using this software to manage data and quality control for identical equipment, says Ronca-Battista, probably satisfy the data-standardization requirements for membership.

Other PQAO rules:
- Audited equipment must be identical,
- audits must be conducted with equipment different from that used by members for internal audits,
- auditors must be non-PQAO members certified under the National Performance Audit Program.

PQAO audits can be conducted by a contractor, EPA auditor, or a tribal or other auditor certified under NPAP requirements. In some cases, that might soon include TAMS Center technical staff using their own equipment (after logistical issues are worked out; see article titled "Adventures in [Audit] Trailering" in this issue). Although the TAMS Center is limited in both certified auditing staff and through-the-probe auditing equipment, any audits it performs for tribal air programs will be free of charge.

Ronca-Battista, who handles data-management support for the tribes through ITEP’s TAMS Center, can offer data-related advice to tribes.

—see PQAO on back page
It's been a sad and difficult time for those who worked with and cared about ITEP's late director, Cal Seciwa. Cal's passing was a major blow, and it will take time to ease our deep sense of loss. But we take comfort in the work we do with tribes that we know Cal would support and champion. Although Cal had been sidelined for several months, his earlier efforts were instrumental in moving us forward on several important ITEP projects that continue to evolve.

Recognizing the disproportionate impact of climate change on Native people, we're expanding and retooling our efforts on that topic. Cal was an important contributor to our evolving climate-change program. During his travels in Indian country on behalf of ITEP, Cal was struck by the fact that many tribal members are still unsure what climate change is and what it means for their communities. He took that awareness to heart and helped us formulate new and, we think, improved approaches to supporting the tribes in their climate change work.

Much of that retooling involves placing greater emphasis on community-level education and outreach. That approach will be reflected in our ongoing Climate Change classroom courses, which will employ a “Problem-Based Learning” modality that draws on participant knowledge and experience and tasks students to develop education/outreach programs to present to their communities and tribal councils.

At the beginning of 2009 we completed the first stage of our Tribal Climate Change website (www4.nau.edu/tribalclimatechange/), which addresses global-warming issues from tribal perspectives. We continue to expand the site, adding new information as well as profiles of tribes grappling with climate change. We're also in the final stage of hiring a Climate Change Program Manager—a new person within ITEP to coordinate and expand our efforts in climate change training and education.

I'll be traveling to the Nez Perce Reservation in Idaho in October to present on ITEP's climate-change efforts. We firmly believe it's time for a coordinated effort among tribes to address the challenges of a warming planet. Gatherings such as the one at Nez Perce will, I hope, further that goal. We will also continue to conduct outreach and education on climate change with tribes across the nation.

Another important project in which Cal played a major role is our recent agreement with U.S. EPA to provide outreach, education, and technical training to the tribes on waste management and emergency response. This new effort will be linked to EPA’s Office of Solid Waste and Emergency Response (OSWER) and will be modeled in some ways on our air-training program, wherein we seek input from tribal environmental professionals and emphasize the use of tribal instructors to deliver training and support. During the early stages of this new effort, Cal conducted important outreach with tribes and government officials, and he offered insights that helped shape the new program.

With the Obama administration in place, we're also embarking on what we're calling a “TAMS road show.” In October, staff from ITEP and our Tribal Air Monitoring Support (TAMS) Center, located in Las Vegas, NV, will tour Southwestern Indian country and speak with tribal leaders and environmental staff on the ecological challenges they face. We'll be visiting a number of Southwestern tribes, including Acoma, Laguna and Hopi Pueblos, the Navajo Nation, and the Hualapai Tribal Nation. Our aim is to help shorten the learning curve on tribal environmental issues for U.S. EPA officials from Washington and show them first-hand the issues and challenges tribes face to protect the health and welfare of their communities.

Cal's time with us was brief, but these and other projects stand as part of an important legacy. We're grateful to Cal for his good work, and we'll move forward inspired by his passion, resolve, and dedication to tribal environmental protection.

From the Associate Director
Mehrdad Khatibi

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Sustainability is a key concept in addressing the challenge of climate change as well as other environmental problems. But how does a tribe go about the task of constructing a foundation on which its sustainability efforts will stand? More and more, tribal environmental professionals are pooling their skills and knowledge in the form of “green teams” to help create those foundations.

The Leech Lake Band of Ojibwe, located in north-central Minnesota, is one of numerous tribes around the country who have formed green teams. Brandy Toft, Air Quality Specialist for the Leech Lake Band, presented an outline of Leech Lake’s Green Team approach at the recent National Tribal Forum in Milwaukee. Toft explained the Green Team was formed to tackle four broad goals: becoming a more sustainable community while also saving energy, resources, and money.

Although the environmental department organized the initial effort, the team has expanded throughout the government infrastructure. Departments that take part include purchasing, child welfare, property management, health and information-management, the school system, and various social agencies. Team members meet once each month to brainstorm, plan, and otherwise turn their ideas into concrete efforts. Toft says the cross-department support is an important aspect of the Team’s effectiveness. “Having these different departments involved really shows that interest runs all across tribal government.”

In June the team organized an energy-awareness project, which they dubbed “The Biggest Loser.” Two buildings were selected for a competition to see who could reduce energy costs the most. Toft says, “We put signs up, and magnets with laminated reminders to turn your computer off at night, turn off the air conditioning, turn lights and screen off when you leave the room, turn the printer off. It’s amazing what that little bit can do. I shut my computer down every night—it doesn’t need to run, and it’s just more chance for a virus to find you.”

The “biggest losers” reduced their building’s energy costs by five percent. “It wasn’t what we’d hoped for,” Toft says of the relatively small savings, “but you can’t knock it, and we learned lots of lessons.” Energy use at the lesser-loser’s building remained static (from readings a year earlier), but that structure contains a large gym, and several large community events held this year probably offset savings its occupants might have made. Toft says the team is already organizing another Biggest Loser event, this time matching two small, comparably sized buildings. Focusing on smaller buildings, she says, reduces energy-use variables and also facilitates the training of occupants on how to save energy. “They’re very competitive,” she says of both teams. “People are really looking forward to it; it’s going to be fun.”

A recent showcase effort by a couple of team members involved installation of passive solar heaters in eight tribal homes. “Passive solar,” Toft explained at the NTF, “is an old principle for heating homes.” The simple use of south-facing windows, she says, reduces energy-use variables and also facilitates the training of occupants on how to save energy. The installed solar heaters are only slightly more elaborate. Composed of a coated solar-absorber plate and a fan, they operate by drawing cool air from the home, heating it in an enclosed box, then returning the warmed air to the home.

Project homes were selected based on several criteria: sufficient space on the south-facing wall for installation, minimal shading of the solar collectors, enthusiasm of the homeowners to embrace the idea of solar, and need in terms of economics and sensitivity to indoor air pollution. The Band received a grant for $50,000 for the eight heaters, staff training, installation, and other costs. As of late August, seven heaters had been installed. Toft said in August that the heaters were already being used due to Minnesota’s cool summer. In one basement dwelling, for example, a newborn child needed a warmer environment, which the heaters were able to provide.

Team members have also conducted wind-turbine modeling studies at the tribe’s two casinos and the site of a BIA school.

—See Green Team on back page
**ITEP Co-Founder Wins Educator Award**

ITEP co-founder and distinguished environmental engineer, Bill Auberle, is the recipient of this year’s Lyman A. Ripperton Environmental Educator Award, sponsored by the Air & Waste Management Association.

The Ripperton award is presented each year to an educator in some field of air pollution control who “has inspired students to achieve excellence in their professional and social endeavors” and demonstrates the unique ability “to teach with rigor, humor, humility, and pride.”

Auberle is a professor of civil and environmental engineering at Northern Arizona in Flagstaff. In the early 1990s, he and ITEP’s first director, Virgil Masayesva, conceived the idea of forming an institute to support then-nascent tribal air programs. ITEP was founded in 1992. Since then, more than 1000 tribal air professionals have attended ITEP’s air-management courses, contributing significantly to the formation of well over 100 tribal air-management programs. Auberle has remained a tireless supporter of ITEP, working to build bridges of support between the Institute and federal, state, and private entities. ITEP’s original mission to support air programs remains its primary focus, but the Institute has moved into other media, including water quality and wastewater, solid waste, and environmental inspector training.

Auberle is a graduate of West Virginia University and has worked as an environmental official for the states of Missouri, Colorado and Ohio; as a faculty member, lecturer, researcher, and administrator at educational institutions in Colorado, Arizona, Ohio, Illinois, and elsewhere; and as a private environmental engineer, including his present position as a principle with the firm EN3 Professionals LLC. He also serves on several boards, including the board of Audubon Arizona.

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**AIAQTP Courses for FY2010**

- **Tribal Data Toolbox**
  - Sep. 30–Feb. 12
  - Online
- **IAQ in Alaska Native Villages**
  - Oct. 6–9
  - Anchorage, AK
- **Climate Change**
  - Nov. 2–5
  - Flagstaff, AZ
- **IAQ in Tribal Communities**
  - Nov. 17–20
  - Tahlequah, OK
- **Improve/Protect AQ**
  - Dec. 8–10
  - Albuquerque, NM

For updates and additional information, please visit our website at www4.nau.edu/itep/trainings/.

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**U.S. EPA Regional Tribal Air Program Contacts**

For contact information on U.S. EPA’s regional tribal air staff, visit the web at:

www.epa.gov/air/tribal/coordinators.html

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Studies have shown that 40% of parents will set a quit date when asked to do so by their child's pediatrician. “Anytime you can get a parent to quit, it’s a win-win situation,” says Dr. Winickoff, assistant professor of pediatrics at Massachusetts General Hospital for Children. “Parents that quit live longer, and they are less likely to smoke during future pregnancies. And their children are less likely to suffer sudden infant death syndrome, impaired lung development, middle ear infections, and severe asthma.”

Dr. Winickoff has coined the term “third-hand” smoke to describe smoke residues that get into clothes, hair, and furniture. He has found that only 43% of smokers recognize that residues from clothing are also harmful to children.

Sixty percent of children ages 3 to 11 are still exposed to secondhand smoke. The US Centers for Disease Control and Prevention offer several suggestions for reducing the exposure of children to second hand smoke:

1. If you smoke, quit. To get free counseling, call 800-QUIT-NOW.
2. Make your home and car smoke-free. Opening a window is not enough.
3. Make sure your children’s day-care center and schools are smoke-free.
4. Insist that no one smoke around your children.
5. Choose smoke-free restaurants.

For more information on the impacts of smoking on the health of children, contact the EEOP staff.

For a list of the 599 chemicals used in the manufacture of a cigarette, visit http://quitsmoking.about.com/cs/nicotineinhaler/a/cigingredients.htm

EEOP Program Coordinator Moves On

EEOP Program Coordinator, Matthew Zierenberg, has moved with his family back to his hometown in Utah, where he has taken a job as a teacher at a local school.

Matthew has been with ITEP since early 2005, when he came to Flagstaff from Kansas, where he was Program Director of the Wildwood Outdoor Education Center, working with inner city teachers and students.

During his time with ITEP, Matthew contributed to scores of educational efforts with K-12 students in activities ranging from astronomy to bird-identification to energy alternatives. In his final major work with our Education and Outreach program, Matthew assisted Summer Scholar participants during their visits to the campus of Northern Arizona University.

Throughout his career, Matthew has worked as an environmental educator, a role he will surely continue in his future endeavors. EEOP Sr. Program Coordinator, Mansel Nelson, says of Matthew’s time with the EEOP program, “His talents will be missed. Students and teachers always enjoyed working with Matthew. Now that he has his own classroom, I am sure that he will be an awesome teacher.”
“We can’t manage what we can’t measure,” said Ann McCabe, The Climate Registry’s Midwest Regional Director, at a National Tribal Forum presentation in Milwaukee in early June. She was referring to emissions of greenhouse gases (GHGs), which are largely responsible for the rapid warming of the planet.

Tracking GHG emissions data across the U.S. would be all but impossible without a centralized, coordinated approach to gathering what is a hodgepodge of voluntary and mandatory reporting data—an approach that was neglected over the past eight years. The nonprofit, 243-member (as of January 2009) Climate Registry was founded by U.S. and Mexican states, tribes, and Canadian provinces, and territories. The Registry offers a system whereby emitters can “calculate, verify, and publicly report their carbon footprints in a single, unified registry.”

The benefits of participating in the Climate Registry might seem less than obvious, especially to private enterprises, which are often loathe to reveal proprietary data. However, many such organizations have already signed on, for one or more reasons listed on the Registry website. That list includes demonstrating environmental leadership, managing GHG risks and opportunities, gaining competitive advantage by increasing operational efficiency, and managing carbon-related risks.

At the National Tribal Forum, McCabe described the Climate Registry as an entity that not only tracks emissions but helps members identify energy-efficiency modes and practices, provides third-party verification of consistency and quality, and offers members an important jump on mandatory reporting that will begin in 2010. Other membership advantages include access to online reporting software and information, and the status of being perceived as a proactive, responsible actor in the climate-change struggle.

Lisa Gover, Director of the Campo Kumeyaay Nation Environmental Protection Agency, represents one of four Climate Registry-affiliated tribes (others are the Gila River Indian Community, Southern Ute Tribe, and Acoma Pueblo). She says Campo was involved with The Climate Registry “before its inception” and helped get the effort going with expertise and funding assistance. Gover currently serves on the Protocol Development committee, which oversees the creation of reporting protocols for different economic sectors and an Ad Hoc Committee that will provide recommendations on merging-in carbon credit issuance.

The Protocol committee just released a protocol (a blueprint for gathering and reporting data) for the electric-power generating sector as well as a “local government operations” protocol. Gover is paying close attention to the latter, as it could provide the template for reporting by tribal governments. Gover explains, “Tribal governments are often different from state and local governments. For one thing, tribes often own the industries on the reservation, so it isn’t a case of separating out the private sector from government functions. We’re looking to modify that protocol specifically for tribal government operations.”

Gover also works constantly to ensure “the word ‘tribe’ is present in all Registry discourse and documents.” To emphasize the need for attention to that issue, she quotes a popular dictum: “If tribes aren’t at the table, they’re usually on the menu.”

She says Campo’s leadership at the time the tribe joined the Registry “was taking a broad look at future environmental-development planning and saw The Climate Registry as one of the cutting-edge groups. They were also looking to take a leadership role in climate change and GHG emissions controls and measurement.”

Gover hopes other tribes will choose to sign on with The Climate Registry (there are no mandatory dues for membership, though contributions are encouraged). Her association with the Registry, she says, is educational and personally fulfilling. One reason she’s pleased to participate is because membership in The Climate Registry facilitates contacts with some of the nation’s leading environmental experts. For example, she says fellow board member Eileen Tutt, Deputy Secretary for California EPA’s Climate Change and Environmental Justice department, has become a valuable colleague and friend.

For more information on The Climate Registry, visit its website at theclimateregistry.org. Gover can be reached at 619-478-9369, or by e-mail at lgover@campo-nsn.gov.
In late March 2008, EPA Region 7 delivered an audit trailer to the Tribal Air Monitoring Support (TAMS) Center. The mobile auditing equipment was designed to travel to onsite locations and fulfill all Performance Evaluation Program (PEP) audit regulations, primarily for filter-based Federal Reference Method PM$_{2.5}$ samplers, as well as for National Performance Audit Program (also known as Through-The-Probe) audits for gaseous analyzers.

The first of two requests for audits came from the Northwest Band of Shoshoni in Utah and the Northern Cheyenne Tribe in Montana. TAMS Center staff planned the trip for July 2008. However, a week before leaving, a random inspection revealed the trailer was not road-ready. A major structural overhaul was required to install axles that could bear the total weight of the trailer and its instruments (the trailer had a 7500 lb capacity, while the total mass of trailer and instruments was about 10,000 lbs).

By the time the trailer overhaul was completed it was November, and roads to Utah and Montana were icy and slick, so the staff (myself and technician Henry Gerard) had to wait until calendar year 2009. On July 6, 2009, based on a prior arrangement with the Northwest Band of Shoshoni and the Northern Cheyenne tribes, we drove the trailer to Utah, where we met Jason Walker, the operator for the Northwest Band of Shoshoni’s ozone monitor and conducted the TTP audit. The instrument passed the audit with flying colors.

Henry and I then drove the trailer farther along on I-15 toward Lame Deer, Montana, site of the Northern Cheyenne monitoring site. It was late afternoon when, as we passed a semi tractor trailer, Henry and I noticed the trailer was swaying. Finvestigation revealed that one of the dual tires had been ripped to shreds, in the process bending the rim and rolling back half the fender.

Henry and I were lucky we were within a mile of the small Montana town of Lima, where we pulled into the town’s tire shop and changed the tire and rim. I was concerned about the safety of our trip and called Emilio Braganza at the TAMS Center, seeking his recommendation. Emilio agreed we faced safety issues and suggested we replace the remaining tires and return to Las Vegas. After regretfully canceling our appointment with Jay Littlewolf, the tribal professional at Northern Cheyenne, we headed south to Las Vegas.

Sadly, we’ve concluded that even with upgraded tires, the trailer is not suitable for long-distance travel; some of the distances are too great and often require driving over roads that are not in the best condition. We’re now seeking alternative ways of utilizing this equipment for onsite audits.

One alternative to driving the trailer cross-country and potentially jeopardizing the auditors’ safety, is to load the equipment on pallets and ship it in containers to tribal destinations, and then to send a TAMS auditor by another route to conduct the onsite audits. This method, known as a “case-based system,” offers good possibilities for conducting these audits on location. Critics of this method note that the audit instruments could be damaged during shipping and handling, and audit gases might pose rupture and explosion risks while in transit. However, EPA’s Region 9 Quality Assurance Coordinator assures us they’ve shipped instruments as far as Hawaii without problems. This mode of transport is under consideration by the TAMS Steering Committee. We’re also looking at ways to fund this alternative approach. We’ll let the tribal air community know when we’ve worked out a new plan.

Meanwhile, the audit trailer has a home at the TAMS Center in Las Vegas, where it has already served as a training tool for our Audit Certification course. Our plan is to train tribal auditors so these folks can audit each other in Indian country at minimal expense.

For more information on the TAMS Center auditing program, contact Farshid at Farsi.Farshid@epa.gov. Farshid’s phone number is 702-784-8263.  

By Farshid Farsi
TAMS Center EPA Co-Director

Adventures in (Audit) Trailer
Green Team - from p. 3

Anemometer (wind speed and frequency) readings were promising at the school site, and that and related information has been passed on to the Band and the school’s developers.

Other Green Team efforts include ongoing “Styrofoam-free” and “paperless document” outreach projects. More generally, team members constantly look for outreach and educational opportunities in the schools and community.

“If someone says they’re going to be at a booth,” Toft says, “I’ll give them information to hand out.” Other funding venues have been pursued since the Green Team’s inception, allowing for collaboration and shared staff time when they seek funding. The Team recently applied for funding to hire a full-time Sustainability Coordinator to help coordinate, expand and encourage more green projects.

A “recycled” recycling effort at Leech Lake is also on the Green Team’s to-do list. “That’s a feat,” Toft says. “The Band has tried it already a couple of times. How does the Team do it better? How do we move this beyond the government buildings and out to people’s homes?” Change is the biggest obstacle, she says, along with helping people understand the importance of not simply sending that soda can off to the local landfill.

One promising approach, she says, involves tying the effort to local concerns and needs. “If you recycle metal, you don’t have to mine for it. There are mining issues up here. This is one of the biggest iron-taconite regions in the U.S. and maybe the world. There are sixteen active mines currently operating, at least 19 more in the permit stage, and another bunch in the exploratory phase. The key is education.”

The Green Team’s work has had consistent tribal backing; “We will become more sustainable,” Toft says the council has insisted. That’s important for both logistical and emotional reasons. In this region where logging is an important industry, she says, “being called a “tree-hugger is no compliment. But if the council is saying ‘We’re going to be green,’ people can feel like it’s an okay thing.”

The slow pace of progress, she says, can be frustrating at times. But Toft is confident “we’ll get there; it may be through baby steps, relative progress in moving that way.” Their team effort will likely improve the odds they will achieve that crucial goal.

Contact Brandy Toft at air@lldrm.org, or call her at 218-335-7429. ☮