

Tribal Air Monitoring Outlook

US EPA/R&IE/CIE



TAMS Center

March 2007

Editor: Polly Hennessey

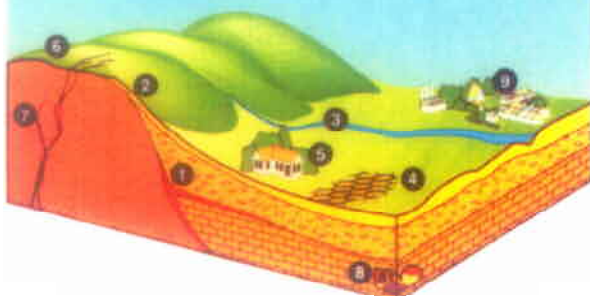
Radon—Outreach

"All communities and persons across this Nation should live in a safe and healthful environment."

Evaluating Radon Potential

By knowing something about the geology and soils of the area, scientists can evaluate the radon potential for the rocks and soils of housing sites or areas of interest. These factors can increase the probability that an area will have above-average levels of radon.

1. Uranium-rich rocks occur in the area.
2. Highly permeable soils are present.
3. Soils are well-drained or dry most of the time.
4. Soils form deep cracks during dry times of the year.
5. The site is located on a hill or slope.
6. The soils are thin and bedrock is close to the surface.
7. Underlying rocks are fractured.
8. The underlying rock contains limestone caverns.
9. High levels of indoor radon have been reported in the county or neighborhood.



Courtesy of US Geological Survey Graphics

With the words quoted above, President Clinton issued Executive Order 12898 on February 11, 1994, to establish environmental justice as a national priority. Environmental Justice as defined by the Environmental Protection Agency (EPA) means that, "all people should be treated fairly under environmental laws without discrimination based on race, ethnicity, culture or economic status." Studies indicate that certain socioeconomic groups have been correlated with unequal distribution of environmental health risks. Radon is one example of a pollutant that contributes to indoor environmental inequities. Radon is the second leading cause of lung cancer in the United States and is the leading cause of lung cancer in non-smokers. By current EPA estimates, nearly one in 15 or six million homes in the U.S. may have indoor radon levels at or above 4pCi/L (picocuries per liter), the level at which EPA recommends action should be taken.

"Radon is a naturally occurring radioactive gas without color, odor or taste, that undergoes radioactive decay and emits ionizing radiation. Radon comes from the natural (radioactive) breakdown of uranium and thorium in soil, rock and groundwater and is found all over the U.S. The largest fraction of the public's exposure to natural radiation comes from radon, mostly from soil under homes."

The Radiation and Indoor Environments National Laboratory's (R&IE) Center for Indoor Environments (CIE) has maintained an internationally recognized radon laboratory since the early 1990s. This includes a fully developed radon calibration laboratory and a charcoal canister analysis system. The charcoal canister system is used by CIE to provide American Indian tribes their radon measurement services. This laboratory also provides technical support and quality assurance to EPA Regions, states, cooperative partners and the radon industry. The laboratory is also used to calibrate the charcoal canister analysis system and is calibrated to the National Institute of Standards and Technology (NIST).



Charcoal canister analytical system. These canisters are part of an 8 station system designed to measure radon concentration from 4 inch diameter barrier face charcoal canisters.

Evelyn Clay, an Environmental Protection Specialist with CIE is the lead staff in the Laboratory's Environmental Justice Program. As previously stated, this program supports both EPA Regions and Headquarters in delivering radon measurement services to underprivileged communities. Because these communities do not have the economic resources to utilize radon measurements and have them analyzed, the CIE Radon Laboratory receives their requests from EPA Headquarters and/or one of its Regional offices. After receiving the request to support a particular community, the CIE Radon Laboratory distributes the test kits to those communities.

The kits are then returned to Evelyn at the CIE Radon Laboratory where she performs the analyses of the test kits using the charcoal canister system. The canisters used by the Laboratory are barrier faced charcoal canisters. The canisters need to be deployed for a minimum of four days to a maximum of seven days. After exposure, the canisters are mailed via regular mail to the CIE Radon Laboratory where they are analyzed within approximately seven days after the closing of the canister. Evelyn distributes approximately 3000 canisters annually. At present, she is assisting about 15 plus tribes including the Navajos and soon to be added to the list, the Pueblos. These tribes, plus others comprise a total of 30 environmental justice groups utilizing the CIE Radon Laboratory. Evelyn is also responsible for the quality control procedures associated with the charcoal canister system. Through quality control the communities are assured that the results are both precise and accurate. After testing, the data that has been collected is incorporated into a report that is sent to the requesting Region or State regarding the analytical results. After receiving the report, Headquarters or the Region distribute the results to the community where the exposure took place. In addition to the processing of the charcoal canisters, Evelyn also visits local schools and attends national meetings where she exhibits posters and hands out literature explaining radon and its impact on health and safety and the role that the CIE Radon Laboratory plays in servicing both community and tribal environmental issues.

Greg Budd, Senior Science Advisor, is the CIE Radon Laboratory Manager. In this capacity, he coordinates all of the Radon Laboratory activities with the R&IE management in Las Vegas, NV, as well as managers and technical personnel at EPA Headquarters. He is responsible for ensuring that the environmental radon chambers are operating and maintained. He developed a quality assurance system for the Radon Laboratory and operates that system assuring that the radon chamber measures radon with the necessary high precision and accuracy as required by current standards. Greg is the lead in performing radon exposures in the chambers supporting states and EPA Regions for quality assurance, which includes the spiking of quality assurance samplers and the calibration check of those samplers. He also heads the effort in annual private radon laboratory inter-comparisons where the EPA Radon Laboratory serves as the reference laboratory for the inter-comparisons. The Laboratory's past comparison with NIST has shown that it is within two percent of their measurements.



Evelyn Clay is servicing a commercially available radon detector that is being used to survey the area outside of the environmental radon chamber .



In this photo, Evelyn Clay is inserting a charcoal canister into one of the stations in the charcoal canister analytical system.

If you have any questions concerning CIE's involvement in the Environmental Justice Program, please call Evelyn Clay at 702-798-2324 or email: clay.evelyn@epa.gov.

Resource Information Center

The Resource Information Center (RIC) website went on-line in the fall of 2004 with the goal of providing an easy to use, searchable database of tribal and EPA guidance documents, websites and other resources helpful to people who work for tribal environmental quality programs. The RIC currently contains approximately 1,300 documents and references. RIC users can search for documents by subject or text and can choose to search only for tribal documents. You can access the RIC at: <http://www4.nau.edu/tams/services/ric/index.asp>.

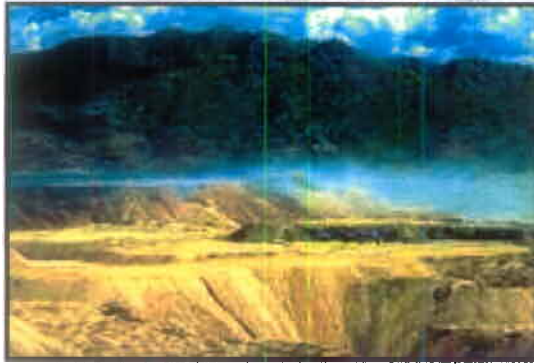
The Institute for Tribal Environmental Professionals (ITEP's) Library is easily searched through the RIC. It currently contains eighteen documents developed by tribal environmental programs ranging from Treatment as a State (TAS) documents to tribal emission inventories to Quality Assurance Project Plans (QAPPs) for air and water quality monitoring projects. Tribes who agree to share their documents through the library are notified each time their document is shared with another tribe. If you have a document you would like to share, please contact Sarah Kelly at email: Sarah.Kelly@nau.edu.

PM Standards



Massive smog episode in New York City, 1963.

Photo: EPA Journal



Wind blown tailings originate from the dried surface of the Yankee Doodle Tailings Pond, Silver Bow County, MT, 2000

Photo: Stuart Jennings, Montana



Grand Canyon obscured by Smog.

Photo: American Geological Institute

Over the past 40 years, efforts have been made to address the ongoing concerns associated with air pollutants and the health effects and environmental consequences of these various substances. With the Air Pollution Control Act of 1955, the Federal government began the first in a “series of clean air and air quality control acts which are still in effect and continue to be revised and amended.” In the Clean Air Act of 1963, Congress hoped to reduce air pollution by setting emissions standards for stationary sources which included power plants and steel mills. In 1970, the problem was once again addressed with major revisions and standards that established new primary and secondary rules for ambient air quality, new limits on emissions from stationary and mobile sources which would be enforced by state and federal governments. In this Act (amendment) increased funding was authorized for pollution research. In 1990, the Clean Air Act was once again revised due to concerns over the environment. This act addressed five areas: air quality standards, motor vehicle emissions and alternative fuels, toxic air pollutants, acid rain and stratospheric ozone depletion. As stated in Public Law 101-549, this was “An Act to amend the Clean Air Act to provide for attainment and maintenance of health protective national ambient air quality standards, and for other purposes.” EPA defines the common air pollutants as: Ozone; Volatile Organic Compounds (VOCs); Nitrogen Dioxide; Carbon Monoxide; Particulate Matter (PM10-PM2.5, dust, smoke and soot); Sulfur Dioxide and Lead.

As of this date, EPA maintains the current daily average standard for PM10 at 150 micrograms per cubic meter of air but lowered the daily average standard for PM2.5 from 65 micrograms per cubic meter of air to current concentration levels of 35 micrograms per cubic meter of air with the annual average standard for PM2.5 remaining at 15 micrograms per cubic meter of air. EPA has not yet issued new designation guidelines. With the new lower standard for PM2.5 some areas will show violations of the new standard and will have to be designated as non-attainment. “The Clean Air Act and Amendments of 1990 define a ‘non-attainment area’ as a locality where air pollution levels persistently exceed National Ambient Air Quality Standards, or that contributes to ambient air quality in a nearby area that fails to meet standards.”

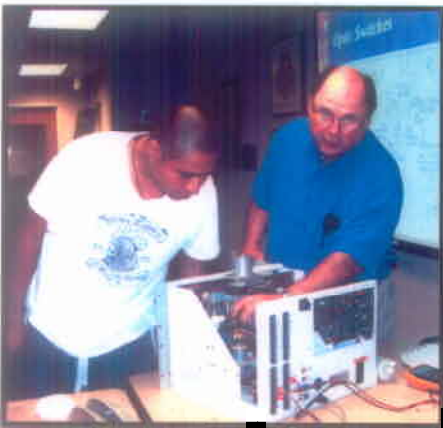
The Tribal Air Monitoring Support (TAMS) Center has conducted PM Monitoring and Instrument Operation Courses, the last one was held in December 2006. If you have any questions concerning PM monitoring current EPA guidelines, please call Farshid Farsi at (702) 784-8263 or email: Farshid.Farsi@nau.edu.

AIAQTP Course Schedule

The American Indian Air Quality Training Program (AIAQTP) and the Tribal Air Monitoring Support (TAMS) Center have the following courses scheduled.

2007

- Dataloggers, March 22-29, Las Vegas, NV, TAMS
- Air Quality System (AQS), April 24-26, Seattle, WA, TAMS
- Air Quality System (AQS), May-TBD, San Francisco, CA, TAMS
- Air Quality and Community Health (New), April 24-27, TBD, AIAQTP
- IMPROVE/Speciation Auditing, May 1-4, Las Vegas, NV, TAMS-PA
- AK Air Quality and Community Health, May 8-11, Kotzebue, AK, Alaska-Specific
- Clean Air Act and Permitting (CAA &P), May 15-18, Oneida Reservation, WI, AIAQTP
- Air Pollution and Ecosystems (New), May 30-June 1, Las Vegas, NV, TAMS
- Online Data Management, Go to www4.nau.edu/itep/ for info, TAMS



If you require more information on these courses, please call Lee Rose at (702) 784-8264 or email to lee.rose@nau.edu.



TAMS Steering Committee

The TAMS Steering Committee elected members for the term October 1, 2006 through September 30, 2008. The current members include: Ondrea Barber, Salt River Pima-Maricopa Indian Community, AZ; Tony Basabe, Swinomish Tribe, Washington State; Ryan Callison, Cherokee Nation, OK; Steve Crawford, Passamaquoddy Tribe-Pleasant Point, ME; Lynn Hall, Bad River Band of Chippewa, WI; Jim Woods, Makah Indian Tribe, Washington State; and new member, Jason Walker, Northwestern Band of the Shoshone Nation, UT. The next meeting will be held at the Virgil Masayesva Environmental Learning Center, Radiation and Indoor Environments National Laboratory (R&IE), Las Vegas, NV, March 20-22, 2007.



Jason Walker, newest member of the TAMS Steering Committee is an Air Quality Specialist with the Northwestern Band of the Shoshone Nation (NWBSN) of Washakie, UT. The NWBSN has a small reservation of approximately 188 acres in Northern Utah just south of the Idaho and Utah border in Box Elder County, 90 miles north of Salt Lake City, UT. There are two offices to serve tribal members: an environmental office located in Pocatello, ID, with the second office located in Brigham City, UT.

Currently, Jason's duties involve overseeing the day-to-day operations of the NWBSN Air Quality Department. This includes monitoring for Particulate Matter (PM_{2.5}); Ozone (O₃) and Meteorological (MET) on the reservation. Of particular interest to the Tribe is the impact of economic development on the NWBSN. In the future, the Reservation may be undergoing increased development in the residential sector, which may have increased impacts on the current and future ambient air quality of the Reservation. Of major concern is the possibility of off-Reservation sources of emissions, which may influence plans to develop a residential community within the boundaries of the Reservation. According to Jason, the planned growth and development on the Reservation warrants further research to determine the environmental changes these activities could have on the local ambient air quality as it pertains to promoting the general health and welfare of the NWBSN. An Ambient Air Quality Assessment Program (AAQAP) would require the collection and analysis of large amounts of meteorological and air quality data. Long range objectives are to possibly add an IMPROVE site and mercury monitoring to the air program. Jason states that he "...looks forward to his first term on the TAMS Steering Committee....and to serving on the committee and representing Region 8 Tribes."





Those Who Travel on Foot “So-so-goi”

*“They called the earth their mother—she was the provider
of all they needed for their livelihood”*

“The homelands of the Northwestern Shoshone were concentrated along the rivers flowing into the eastern and northern sides of the Great Salt Lake and on the Raft River and Grouse Creek northwest of the Lake. Locating the various subsistence areas and villages of these bands as their camps existed at the time of white settler invasion in the 1850s requires, first of all, recognition that these small congregations of people moved about each year as food supplies dwindled or increased in the different areas. But the bands tended to place their winter camps in the same sheltered spots if sufficient subsistence were available.” They traveled as semi-nomadic hunter-gatherers in the stark habitat of the Great Basin desert. Early in their history, they moved primarily by foot with the changing seasons. Once the horse was introduced, their mobility was increased and they were able to cover large areas. In early and late autumn, they ranged in what is now, primarily, Salmon, Idaho, and western Wyoming. Here they would fish for salmon and hunt for buffalo, deer and antelope. The fish and meat would be dried for the winter months with the skins from the herds being used for clothes and teepees. In late October “the annual gathering of pine nuts” took place. During the winter, they could be found in what is now called Franklin and Preston, Idaho with spring and summer taking them to southern Idaho and most of Utah.



*Shoshone women with large baskets for carrying gear and
collecting wild foods, flat baskets for preparing seeds
and nuts in the Great Basin desert, circa 1868.*

Photo and caption courtesy of the NPS

Around 1810, the fur trade in North America began to prosper bringing with it trappers and fur-traders. This was most likely the beginning of the Shoshone's long-term exposure to "non-native cultures". "Before white penetration, the Great Basin and Snake River Shoshone had been among the most ecologically efficient and well-adapted Indians of the American West." As the horse proved to be an asset affording the Shoshone mobility which aided in the hunt for buffalo, a fearless and resourceful leader named Chief Pocatello emerged.

Chief Pocatello was born in 1815 in the Grouse Creek Valley of Western Utah. "His given name was Tonaioza, which meant Buffalo Robe." The name Pocatello was most likely given to him by white people and meant "he who does not go by the trail", although who might have done it and when is not known. In 1857, he was the leader of approximately 400 Shoshone Indians. As white settlers began their migration across the west setting up farms in Shoshone territory, Chief Pocatello and his band became increasingly concerned and retaliated for what they saw as, not only abuse of their land but the loss of grazing areas and game which were needed to feed the tribes. By the year 1869 another event would take place which would further weaken the Shoshone's hold on their territory. "The completion of the transcontinental railroad in May 1869 made matters even worse. Large numbers of emigrants could now easily reach Utah and compete with the Shoshone and other Indian groups for land and resources." During the 1870s, Chief Pocatello and other members of his tribe moved to a reservation near Fort Hall, Idaho. "In 1878 the Union Pacific railroad terminus was at the southern end of the reservation at Fort Hall and was named Pocatello." Chief Pocatello died in October 1884 and a man named Judge Oliver gave the following description of the Chief, "about 70 years old, about 5 feet 10 inches tall, straight as a sapling, a pretty good-looking old man. He was always pleasant and I spent many hours talking to him...."



*Chief Pocatello and other members
of the Shoshone Tribe.*

*Cover photo from the book, Chief Pocatello,
courtesy of the author, Brigham D. Madsen*