

Tribal Air Monitoring Outlook

US EPA/R&IE/CIE



TAMS Center

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The Church Rock Uranium Monitoring Project

"The Puerco River once was known among local Navajos as Tó Nizhóní or 'beautiful water'."



Church Rock as seen from Red Rock State Park, located near Gallup, NM.

Church Rock is located a few miles from the Navajo border town of Gallup, New Mexico. In this arid, windy land a series of underground uranium mine shafts existed along with a mill and a small community of Navajos whose subsistence was based historically on the herding of cattle, sheep and goats. The mine was owned by the United Nuclear Corporation (UNC), a corporation based in Virginia. On the morning of July 16, 1979, the dam at Church Rock ruptured, sending hundreds of tons of mill tailing wastes and contaminated liquid into the Rio Puerco Wash, a stream traditionally fed by spring rains. "Residues of radioactive uranium,

radium, thorium and traces of metals such as cadmium, magnesium, nickel, selenium and high concentrations of sulfates were detected." The Rio Puerco became a contaminated water source and life for the people of Church Rock was irrevocably altered. This incident became the largest release (by volume) of low-level radioactive waste in United States history. In an effort to mitigate the release of contamination into the local environment UNC erected signs stating, "Contaminated Wash, Keep Out". Unfortunately, many of the local residents could not understand the signs. "...but our cows, sheep and horses can't read that. Most of us can't read, write or speak English. The signs do no good. If [neighbors] know we are from the Rio Puerco Wash, they won't shake our hands....they think we have a high level of radiation....it is wet now, but on days when it dries up, the wind will come along. The dust settles on the grass. The sheep eat it. We eat the sheep. We wonder what that does to our lives."

Twenty years later the Church Rock Uranium Monitoring Project group was formed. The group consists of scientists and technicians, including those from the Tribal Air Monitoring Support Center (TAMS) and the Radiation and Indoor Environments National Laboratory (R&IE), both located in Las Vegas, NV. Also involved is Chris Shuey, who will serve on the project as field manager for the proposed

environmental studies. He is the Director of the Uranium Impact Assessment Program with the Research and Information Center (SRIC), Albuquerque, NM. SRIC is a thirty-two year old, not-for-profit public education and scientific organization that has assisted Navajo communities in dealing with uranium mining impacts since the late 1970s.

The main thrust of the Church Rock project will be to analyze the potential health risks to the local population. As a part of this coordinated effort to examine the impact of the



Photo courtesy of Douglas Tesner/ Independent

Chris Shuey, left, Southwest Research and Information Center, conducts a guided tour of possible contaminated sites; also shown, George Dilbeck, third from left, EPA; and Helly Diaz-Marcano, fourth from left, EPA.

1979 spillage and to make a determination as to the practicality of placing air monitoring equipment in the area, EPA's R&IE Laboratory agreed to provide technical assistance to the Navajo Nation Environmental Protection Agency (NNEPA). During the week of October 27, 2003, George Dilbeck, the EPA Project Officer, along with Environmental Scientist, Helly Diaz-Marcano with the Center for Radioanalysis and Quality Assurance (CRQA); Roger Shura and James Harris, Environmental Radiation Monitoring Specialists with the

Center for Environmental Restoration, Monitoring and Emergency Response (CERMER); Annabelle Allison, co-Director, TAMS Center and Melinda Ronca-Battista, Health Physicist and Quality Assurance Specialist, TAMS Center, visited the site with the EPA mobile scanner van. Helly Diaz-Mercano, R&IE, stated that the van was equipped with "two Sodium Iodide detectors used to measure and record the gamma flux data. The primary (main) detector is shielded and has a 4"x 16" opening to directionally collimate radiations 'viewed' at 55 degrees by the detector. The secondary (background) detector is unshielded for a 360-degree 'view' of the surrounding gamma flux. Realtime Rad™ recorded the count rate data from the two detectors and the coordinate location of each data point. By comparing the data from the two detectors in relation to the terrain types, and detector geometry, gamma flux data was collected. Gamma spectroscopy data was also collected and stored using [the] Pulse Height Analysis (PHA) mode of operation using Detector One with installed Canberra™ software. A default acquisition time of 200 seconds was used. The spectra will be compared to the signature spectra collected from in-situ uranium at the Church Rock Mine." The system operator, Roger Shura, who monitored the detector output displays while viewing the terrain types through the van side window, stated that the primary portion of the study, "included [those] areas with new housing developments and existing residential areas,"...focusing on "where people live and where people are going to live."

The TAMS Center's involvement also includes identifying mechanisms for providing training and technology transfer on the use of the equipment to the Navajo Nation EPA Church Rock community members. Melinda Ronca-Battista of the TAMS Center worked closely with CRQA and CERMER to develop training modules for the scanner van and various radiation detection devices.

At the conclusion of the Church Rock Uranium Monitoring Project, a report will be issued along with the development of a Quality Assurance/Quality Control and monitoring design plan. If you have any questions concerning this project, please contact Annabelle Allison at (702) 784-8263 or email, annabelle.allison@nau.edu or Melinda Ronca-Battista at (480) 759-1544 or email, melinda.ronca-battista@nau.edu.



TAMS Center in Action



Brandy Toft, Air Quality Specialist from the Leech Lake Band of Ojibwe, Minnesota, instructs the Quality Assurance Project Plans Course, held at the TAMS Learning Center.



Allison Johnson of the TAMS Center takes students on a tour of the Gravimetric Laboratory located on the University of Nevada-Las Vegas campus using the newly acquired NAU/TAMS van.



Joe Hameed, center, instructor for the TAMS Center, demonstrates air monitoring equipment to students at one of the PM/PM2.5 courses.

Please note, due to technical difficulties the satellite broadcast system is not working. The TAMS Resource Information Center will have a tape of the program available for viewing. If you require further information, please contact Allison Johnson at (702) 784-8268 or Polly Hennessey at (702) 784-8265. The program will be Web Simulcast, see instructions below.



When: November 19, 2003
1:00—2:00 PM Eastern

What: *Air Toxics Now* Broadcast

How: Satellite Broadcast and Web Simulcast

Broadcast Highlights

- Mercury deposition monitoring study
- Examining technologies to reduce locomotive idling
- Pollution prevention techniques at pulp mill
- Community Assessment and Risk Reduction Programs
- Air Toxics training resources for S/L/T's
- MACT Updates

Target Audience

This broadcast is developed especially for State, local and Tribal air toxics personnel to support implementation of air toxic reduction programs.

Simulcast

This broadcast will be simulcast over the Internet and can be viewed on your personal computer. On the day of the broadcast, go to the Internet and follow the instructions for viewing the simulcast. Please go to:
<http://www.itre.ncsu.edu/cte/NCAirQuality/airtoxienow.html>
and click on **November 19**. You will need to install RealPlayer to view the broadcast. RealPlayer is available free of charge and can be downloaded from the Internet site www.real.com/player/.

For more information about APDLN, including upcoming broadcasts talk with your downlink coordinator or visit our website at www.epa.gov/oar/oaqps/eog

