Taos Pueblo Radon Mitigation Pilot Program

Program Summary

The 2012–2013 Taos Pueblo Radon Mitigation Project was a hands-on radon mitigation training course for the Taos Pueblo Housing Department staff. Over the course of 3 days, the housing staff learned how to test radon levels and design and install radon mitigation systems. After the training, the systems were installed in two homes (one simple and one complex), and both systems reduced the levels of radon well below the U.S. Environmental Protection Agency's (EPA) 4.0 picocuries per liter (pCi/L) action level. The class was presented by the Tribal Air Monitoring Support (TAMS) Center from Las Vegas, Nevada.

"The effects of radon are not something you can catch overnight, but its long-term exposure can have dire consequences. It is our children and their children that we need to think about, and so we must give it the proper attention it deserves. Taos Pueblo Housing has taken the initiative towards building our capacity to help address these issues for our Tribal members by obtaining trainings and certifications for our force account staff and working to establish collaborations with various agencies and funding resources. Our ultimate goal is to address health hazards and indoor air quality issues for every home here on the Taos Pueblo."

– Daniel Suazo, Taos Pueblo Housing

Why Explore Radon Issues?

The dire health effects of radon are not something you can catch overnight, but long-term exposure to radon can have grim consequences. You can grasp the problem just by viewing a radon map of the United States. Streaks of red representing increasingly high levels of radon are spread all over New Mexico—home to the Taos Pueblo Tribe. Radon—a colorless, odorless, radioactive gas found in soil, rock and water—can easily penetrate into homes through cracks in the foundation and floor structure. Increased levels of radon lead to increased incidences of lung cancer, even in individuals who have never smoked a day in their lives. Furthermore, long-term exposure to radon is the second-leading cause of lung cancer in adults. Radon was and still is affecting the lives of many individuals of the Taos Pueblo Tribe, and Daniel Suazo wanted to do something about it. Mr. Suazo has been with the Taos Pueblo Housing Department for more than 10 years and has been working vigorously to start a radon program since he joined the housing department. Although the Taos Pueblo Environmental Department was looking into the issue of radon, there was one huge concern. Radon was considered a maintenance issue, so funding was not available to eradicate the issue. Mr. Suazo knew he needed to establish a program, find stakeholders, and put the program into place if he wanted to help his community. Ultimately, his goal is to provide affordable, sustainable and healthy housing to the Taos Pueblo Tribe.

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A Brief History

Daniel Suazo is a man who wears many hats, with radon mitigation and prevention at the top of his job list. As the construction project manager for the Taos Pueblo Housing Department, he experiences firsthand the risks involved with poor indoor air quality. With a passion to help his people, Mr. Suazo set off on a process several years long by going to workshops, meetings and trainings related to indoor air quality construction and radon to fully understand how he could help his community. Although radon mitigation machines were installed over 15 years ago, they were outdated and most were not functioning. He knew something had to be done. From 2012 through 2013, the Housing and Environmental Departments of the Taos Pueblo Tribe began collaborative efforts to start a Radon Mitigation Pilot Program. Up to 44 homes were tested for radon using charcoal test kits, which then were sent to Alpha Energy Laboratories for analysis. Tests indicated that 70 percent of samples were above EPA's 4.0 pCi/L action level, varying from 4.9 to 46.8 pCi/L, an unhealthy amount of radon to say the least. After this, the EnergySmart Academy of Santa Fe Community College hosted a 5-day radon testing and mitigation program.

Bringing All Stakeholders to the Table

Although the above program was informative, hands-on action was needed in the community. Mr. Suazo then decided to contact the Institute for Tribal Environmental Professionals (ITEP) and the TAMS Center to discuss his options. With the help of the Taos Pueblo Tribe Housing and Environmental Departments, the TAMS Center was able to partially fund the program and then accessed matching funds with the New Mexico State Environment Department (Radiation Control Bureau). The lead instructors for this hands-on radon mitigation workshop were Brad Turk (Environmental Building Sciences, Inc.) and Jed Harrison (EPA).

Empowering Others to Lead

The two houses chosen for this radon mitigation project were categorized in previous years as priorities based on testing results and family composition. On the first day of the project, the instructors provided the housing team with an overview on radon testing and mitigation through classroom instruction. Day two consisted of going out into the field, doing a home assessment on the first house, and then installing a radon mitigation

system directly on the roof of the house. The installation was a success and reduced the levels of radon in the home to 1.3 pCi/L, significantly below the action level. The second house was very different because it was an older house constructed by the U.S. Department of Housing and Urban Development; it was handmade from adobe, meaning the team could not install a radon mitigation system on the roof. The radon levels were high enough that the mitigators determined it was necessary to go into the foundation, penetrate the concrete, and install the system into the ground. This was beneficial because the housing staff was able to learn how to install two very different radon mitigation systems that brought radon levels down to below the action level.

Future of the Program

While doing the home assessment in the second home, the team noticed it also had a severe mold problem. This information brings us to the future of this pilot program—an all-encompassing indoor air quality program. Mr. Suazo explained that indoor air quality is addressed while the Taos Pueblo Housing Department does renovations of homes, but it is sometimes hard to eradicate the issues they detect. The Taos Pueblo Radon Mitigation Project is just a stepping stone to an even bigger program they want to start with lead, radon and mold at the forefront. Their next step is to establish criteria for how they are going to start selecting homes and how to initiate this project for the entire Tribe. Mr. Suazo hopes to be able to improve more homes very soon. They also plan to allocate funds in the Indian Housing Plan for indoor air quality issues. Although more training is needed to successfully launch this program, their team is eager to learn and ready to take on the task.

Future Goals for the Taos Pueblo Tribe

- Perform home assessments on every house on the reservation and mitigate indoor air quality issues when needed.
- Establish a scope of work and have a battle plan for when funding becomes available.
- Launch a community outreach program on indoor air quality issues to educate residents.

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Additional Information

2015 Radon System Installation Training Work Group

Ray Kenmotsu, Indian Health Service, Albuquerque, NM; Jed Harrison, EPA Office of Radiation and Indoor Air, Las Vegas, NV; Scott Fields, Taos Pueblo (TP) Environmental Office; Instructor Brad Turk, Environmental Building Sciences, Inc.; Rogerson Tsosie, Taos Pueblo Housing (TPH); Antonio Gomez, TPH; Anthony Suazo, TPH; James O. Romero, TPH; John Archuleta, TPH; Daniel Suazo, TPH Construction Project Manager; Robert Romero, TPH Inspector; Jimmie Romero, TPH Lead Carpenter; Jeff Ogburn, TP Environmental Office; Robert Gomez, TP Environmental Office Manager.

TAMS Center

The TAMS Center started out 18 years ago with a goal to provide Tribes with technical support to perform air quality monitoring. EPA partnered with ITEP at Northern Arizona University and pulled in many experienced air quality professionals from Tribes. They then formed a steering committee and asked the members to decide which environmental issues were the most important to focus on and how they should invest their resources. The TAMS Center evolved over the years to work on quality insurance support and writing new Tribal implementation plans. Indoor air quality efforts recently have become a small slice of the work they do, and these services continue to be in high demand. According to their website, the TAMS Center offers different training courses that focus on a variety of topics related to ambient and indoor air quality monitoring. To date, over 1,100 Tribal professionals have been trained by the TAMS Center, representing more than 185 Tribes.