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RISK COMMUNICATION TECHNIQUES FOR DEALING WITH SCHOOL OFFICIALS FACING RADON REDUCTION REPAIRS: A CASE STUDY OF TWO DIFFERENT APPROACHES UTILIZED IN NEW MEXICO SCHOOLS

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INTRODUCTION

When the State of New Mexico began working with schools to test and mitigate for radon, we had no idea that we would "go to school" in the science and art of risk communication.

School radon mitigation can be a painful process. A "do-good" attitude about the endeavor is not adequate to get the job done, we discovered. Furthermore, we submit that risk communication is at least half the job of school radon mitigation, and is frequently more difficult than the technicalities of diagnostics and mitigation.

This paper compares and contrasts two case studies in risk communication. Case A was essentially an "impromptu" case of the State and Federal Governments' attempt at risk communication as the measurement and remediation processes were carried out. Case B reflects a more planned communication process using an outside consultant.

We found that no matter how well you know your subject and are motivated to communicate that subject to affected parties whom you want to help, the process can become very muddled and even antagonistic.

BACKGROUND

School radon testing was initiated by the State of New Mexico Environment Department in the Winter of 1990 as a government service. Some 3200 tests in 151 schools were deployed statewide, either directly by state personnel or by school employees working closely with the state. Short-term charcoal monitors and long-term alpha track detectors were used for screening and follow-up, respectively.

Schools were chosen at by a consulting geogolgist, whose list was based on assumed geologic radon potential as well as population distribution and geographic dispersion.

The standard approach by state technicians was to contact schools and district offices by phone, explain the plan, and set up an appointment for testing, at which time a school official was

asked to sign a standard waiver. School administrators were almost always agreeable to radon testing, especially since it was a free service. Many did ask the question: "What happens if we have a radon problem?".

The answer was not easy, although we believed school radon mitigation demonstration money would be forthcoming from the U.S. EPA, which was financing the State's current radon program. This was explained to concerned school administrators, and the promise that we were trying for such monies was enough for most.

Finally, 24 buildings in 14 schools were confirmed to have at least one room with radon levels over 4.0 pCi/L. Administrators were informed of the results by letter after the testing was concluded in May, 1991. School officials representing nine of those schools with nine affected buildings asked to be dropped from consideration for mitigation by the state.

This left fifteen buildings in five schools on our "prime mitigation list". Three school buildings in "Town S" were picked up by EPA's Radon Mitigation Branch as a demonstration project, with the entire process lasting from August, 1991 to May, 1992.

The state awarded a contract to Colorado Vintage Companies of Colorado Springs, Colorado, to perform diagnostics and mitigation on the remaining 12 school buildings located in three New Mexico towns. CVC carried out the bulk of the work from May through August, 1992.

Table 1: New Mexico Case Study Milestones

Event	School "S"	School "T"	School "R"	School "M"
Original Tests	2/91	1/91	3/91	3/91
Results Notification to schools	3/91	1/91	4/91	4/91
School Radon Training by State	9/91	9/91	9/91	9/91
Notification of Media by State	10/91	10/91	10/91	10/91
Educational Sessions	Various	5/92	5/92	5/92
Diagnostics	12/91	7/92	6/92	7/92
Mitigation	5/92	8/92	8/92	7/92

CASE A - MITIGATION - EPA PROJECT

Three rounds of testing were conducted in School S over the Winter and Spring of 1991 to confirm high radon levels: two rounds of charcoal tests and one of alpha-tracks. Communication with the principal, teachers and district facilities manager was routine during this three-month process. **Lesson #1: Do not confuse casual communications with an information plan.** Although state personnel felt at the time that a good Rapport existed with school administrators, we came to realize that they never understood (nor did we) how the radon problem would be perceived by the community.

By September, EPA had become interested in the project, and the state confidently notified the district superintendent that although School S had a radon problem, we were assembling a team which could fix the school at no cost to the district. The letter also stated that unless the district had a problem with the procedure, radon test results for School S would be made public during Radon Action Week in October. **Lesson #2: Do not assume that your obligation to notify a concerned party had been fulfilled by a letter; that letter may not have reached the proper person.**

In fact, the State's original letter may have been taken by a subordinate who did not understand its implications. Although follow-up calls were made to the superintendent, we were never able to talk with him until the media picked up on the story. **Lesson #3: Don't let the media do your risk communications for you.** Although it turned out that the media was instrumental in getting the district to the table to discuss the radon issue, the sensationalism surrounding the situation made the initial discussions terse at best.

With the above as a beginning, the following events/processes took place from October, 1991, through May, 1991, on a fairly random basis:

- Regular media inquiries to the schools and state;
- Meetings between the school district, state, EPA, and a few parents;
- Parents talking directly with the media;
- Government discussions at parent-teacher meetings;
- Organization of a "Radon Task Force", consisting of parents, the State Radon Coordinator and an EPA consultant, to watchdog the process and report back to our constituencies;
- High-profile school board meetings to discuss the radon issue and make some decisions about it, and the added problem of asbestos, in School S.

These events were not necessarily positive or negative, but they could have been managed much better. Just as sure as the above events/processes heated up early in the school year, they were cooling down by the end of the school year. The mitigation systems were installed by EPA in the Spring, and subsequent tests showed successful radon reduction and significant indoor air quality improvement.

Ultimately, the district looked proactive, decisive and protective of the childrens' health. Parents and teachers were at ease about health and responsibility issues. EPA and its consultants, especially through the school personnel involvement work of Brad Turk and Greg Powell, had ridden into this Old West town wearing white hats and had surely saved the day!

The problem was fixed, but at what cost? Even though the state had facilitated a solution to a health problem by bringing the school district and EPA together, it had lost a measure of credibility. Why? Essentially, the state was so consumed in solving the problem that the groundwork was not laid for good school and community involvement for this and future such endeavors.

However, so much was learned that the next phase, as outlined in Case B, was measurably much better in risk communication, and this is the way business will continue to be done in the future.

CASE B: MITIGATION - STATE PROJECT

For school districts "R," "T" and "M" all located in small towns, an independent contractor was hired to perform a turn-key design and mitigation project. Although the contractor was to utilize the assistance of state personnel, they had the primary responsibility of dealing directly with the school districts.

In discussions with the State Radon Coordinator, the contractor chose to take an educational approach to the management of the school districts prior to the initiation of any field work. The primary purpose of this initial educational approach was to identify the project team (including district personnel) and to instill a feeling of confidence and ownership in the school district of the entire process. The specific objectives of the education session were as follows:

1. To forewarn district personal of the type of work that would be done during both the diagnostic and mitigation phases so they could communicate this to staff through established channels.

2. To familiarize the school district with the various options for mitigation that may be derived from the diagnostics and what decision role the district could play in the actual execution of the mitigation.

3. To identify the type of maintenance support and information that would be needed from the school in order to accomplish the entire project.

4. To identify other indoor air quality concerns or occupant complaints that could be included in the resultant design.

5. To develop a work schedule with the district's input which would minimize interference with other maintenance projects.

6. To educate the district superintendent and principals on the issue of radon, its' health effects and the nature of remediation so that they would be able to address concerns of teachers, students, parents, and local media.

The education session consisted of a half-day training program, with a supporting manual (a combination of Radon Response in Colorado Schools as developed by WRRTC at CSU for the State of Colorado and a "condensed" version of the State of Washington's School Radon Action Manual) and EPA publications. This was conducted jointly by the State Radon Coordinator and the contractor, Mr. Douglas L. Kladder with the assistance of Dr. James F. Burkhart. The course presented by the contractor addressed the following issues:

1. Radon health effects;

2. Interpretation of seriousness of school radon levels;

3. Basics of radon entry and HVAC systems;

4. Radon diagnostics, and their impact;

5. Explanation of radon mitigation systems; and

6. Role of maintenance personnel in diagnostics and in maintaining radon mitigation system.

An important aspect of this meeting was the attendance of local health officials. This not only added to the credibility of the program but also established a local resource for the district to call upon should questions arise from the community.

Another critical component was the attendance of the district's superintendent and in some cases, members of the school board. Their attendance not only added credibility to the project but was critical in establishing a priority on the assistance that would be needed from the maintenance staff. It also informed these individuals to sufficiently answer questions from the local media. As it turned out this allowed for positive communication to the community that in some cases increased the general awareness of the radon concern in the area.

The last critical element was having the principals in attendance to arm them with the ability to field questions from teachers and parents. This educational approach allowed them to positively respond to these concerns.

The principals' attendance was also critical during this initial phase for determining what indoor air quality concerns may exist in their respective buildings. Their concerns were room specific and extremely helpful to the design team. As a part of this initial meeting it was decided to enlist the assistance of the principals to test CO2 levels in the rooms of concern. This was done by individual Draeger tubes set in the rooms and the principal using the public address system to have the individual teachers take hourly readings in the rooms.

Project Execution Communications

During the course of the project, each individual school building was coordinated by a team consisting of the contractor, the principal and a school maintenance coordinator. The involvement of the principal was primarily for scheduling purposes and communications to the building staff of impending work. This communication included bulletin board notices and informal conversations. This was sufficient due to the fact that all of the field work was done during the summer recess session.

At the conclusion of the work, each principal was walked through the individual systems and provided a written description of the systems. This one-on-one with the principals was designed so that they could explain to the teachers who would be returning in the Fall as to what and why certain changes had been made. Abbreviated explanations describing the systems were also attached to each system complete with a district contact for the benefit of each returning teacher an parent that may enter the room anytime during the school year.

The smooth execution of the work at schools R, T and M was primarily due to the initial involvement of the district in the planning process prior to the diagnostic and mitigation phase; Doug Kladder of CVC clearly understood the value of this early involvement and was instrumental in working to secure that involvement. As accomplished by the initial education sessions this allowed for the districts continued support and direct involvement during the project. This caused the district to have a sense of ownership in the entire program which also allows them to continue as resources for radon action within their community, and certainly the continued maintenance and functionality of the installed systems.

HOW DID WE DO?

As answered by school personnel, New Mexico's Risk Communication process showed definitive results in the two phases, Measurement and Remediation, as well as among individual schools. We have attempted to summarize below the responses to questionnaires distributed by the state.

Table 2: Risk Communication Evaluation
Key: (I)-Area needs improvement: (A)-Area adequate

2A-Measurement Phase

Area of Concern	"School T" (Case B)	"School S" (Case A)	"School R" (Case B)	"School M" (Case B)
Health	(A) School well-equipped to deal with questions	(I) Not ready to communicate health risks	(I) Media had radon information before schools	(N/A) Did not become community issue
Means of Risk Communication	(A) District very open in all avenues of communicating	(I) Letters to staff & parents	(I) Parents should have known school volunteered to test	(A) Teachers informed verbally
Radon Training	(A) District took advantage of prior training offered by state	(I) Some training but not adequate	(I) Some training-not enough	(A) Adequate training provided.
Media Communications	(A) Well informed staff	(I) Suggests on-site help form government	(A) Adequately informed	(N/A) No media questions
Ability to explain testing	(A) No problems	(I) No one felt comfortable	(A) Second training helped	(A) Able to explain to school board
Painful Process?	(A) Exceptional communications with state	(I) Painful, learned a lot, asbestos added to problem	(I) Some parents panicked, media got results first	(A) Communications good with school board; little community involvment

2B-Remediation Phase
Key: (I)-Area needs improvement: (A)-Area adequate

Area of concern	School "T"	School "S"	School "R"	School "M"
Health	(A) Kept everyone informed, honest and up front	(A) Adequate communication	(A) Very open process	(A) Little outside communication
Means of communication internally: Notices, meetings	(A) Effective internal communication	(A) Moderately effective	(A) Very effective	(N/A)
Training	(A) Great deal made available	No response	(A) Contractor training	(A) Contractor training
Media communications capability	(A)	(A)	(A)	(N/A)
Ability to explain remediation	(A)	(A)	(A)	(A)
Involvement W/ Mitigation Design	(A) Very involved	(A)	(A) Very involved	(A) Very involved
Maintenance Personnel Involved	(A) Excellent-can maintain systems	(I) Doesn't know	(A) Excellent	(A) Some involvement
Painful Process?	(A) No, parents, no longer asking questions, increased home testing	(I) Yes, workers disrupted classes-workers needed better training	(A) No, contractor excellent, state helpful	(A) No, very helpful to district, educational value to students

Post remedia-tion	(A) No cost to district	(I) Not sure, principal no longer at School S	(A) No lingering concerns. School using "Radon Ready" techniques in new construc-tion	(A) Problem taken care of; but may request additional maintenn-ance training

Note: The questionnaire respondants were as follows: "School T": Special Services Director; "School S"- Principal, "School R"- District Superintendent; "School M"- Assistant Principal.

SUMMARY/CONCLUSIONS

1) Mitigation of the worst school radon problems found to date in New Mexico has been carried out, or facilitated, by the State Environment Department, therefore reducing long-term health risks.

2) Good will has been fostered in the communities where schools T, R and M are located. To some extent, this is true for the school S community.

3) Informing the school district of the issues of radon in addition to the mechanics of it is critical. This information has to be available to all potential points of contact to the Superintendents, Principals, Maintenance, and the Local Health Officials.

4) Approaching radon testing in an open manner disarms any concerns of "What are they hiding from me?" It also establishes a team approach to the entire process that will ensure that radon is not forgotten as soon as the contractor walks out of the door.

5) The risk communication process, despite every good intention, left very much to be desired. Good intentions are not enough! A plan is needed!

6) As the "School S" principal stated (after the process had concluded): "All in all, it was a good learning experience." It certainly was a good learning experience for state personnel.

7) Something of what was learned by the state in Case A was put to use in the next round of school radon mitigation, beginning with hiring a contractor who understood the value of good risk communication and community involvement.

8) Any school radon program whether it involves measurements, mitigation, or both, must begin and continue with district education and communication. The goal is to establish a partnership with the school district personnel. This aspect of the program must be identified and made part of the project requirements. Whether it is function fulfilled by school district personnel, a health official, or is to be fulfilled as a requirement of the contractor it is an essential element for a successful program.

REFERENCES

(1) **SCHOOL RADON ACTION MANUAL.** Washington State Department of Health, Olympia, Washington.

(2) **RADON RESPONSE IN COLORADO SCHOOLS 1992.** Western Regional Radon Training Center at Colorado State University, Fort Collins, Colorado.