THE RISK OF RADON: NEW ASSESSMENTS

Nearly every homeowner calling the Radon Program Information Line is concerned about the level of risk their family is experiencing from radon in their home. Two studies were recently published that have helped refine our understanding of radon's health impact.

Iowa Study: In June, 2000, a report was published on a major new study by the University of Iowa College of Public Health. Funded by the National Institute of Environmental Health Sciences, the study involved 1,027 Iowa women between the ages of 40 and 84 — 413 of whom were newly diagnosed with lung cancer and 614 of whom acted as a control group without lung cancer.

The study involved four components: 1) rapid reporting of lung cancer cases through the Iowa Cancer Registry (important because many do not live long after diagnosis); 2) a mailed questionnaire followed by a face-to-face interview; 3) a comprehensive radon exposure assessment; and 4) independent histopathologic review of lung cancer tissues.

The study was designed to overcome a key obstacle in radon risk studies. Since lung cancers take 10-40 years to develop, it is essential to have an accurate assessment of individual exposure to radon over several decades. The Iowa study addressed this problem by including only women (since women spend more time at home) who had lived in the same house for at least 20 years. In addition, the women were interviewed in detail about where they spent time within their home, and where they were when away from home. Estimates were made of radon levels for locations away from the home, and at least four radon detection devices were placed in each home at different locations.

The study found that the subjects who were exposed to levels of radon around 4 pCi/L had a 50% higher rate of lung cancer than subjects who were exposed to levels around the average indoor radon level. If only subjects who were still living and able to participate in the in-depth interviews were included in the analysis, the risk rose to 83% higher at 4 pCi/L than at average levels, presumably due to the greater accuracy of the exposure estimates.

This risk assessment is in line with the estimates developed by the USEPA and the National Academy of Sciences.

NAS Study: The sixth of a series of comprehensive radon risk assessments by the National Academy of Sciences was published in 1998. Entitled “The Health Effects of Exposure to Indoor Radon,” it extensively reviewed 11 studies of underground miners, which together involved 68,000 men, of whom 2,700 have died from lung cancer.

The report also examined laboratory studies of the impact of radon on the biological components of cells. Overall evidence appears to support the linear model of risk and exposure – that is, it appears that even a single alpha particle (the type of radiation emitted by radon and its progeny) can irreparably damage a cell causing it to become cancerous.

The study concluded that the best estimate of risk was that between 15,000 and 22,000 deaths per year in the U.S. are due to lung cancer caused by radon exposure. This assessment is actually higher than the EPA estimate developed in the early 1990’s, of 14,000 deaths per year resulting from radon.

In conclusion, both studies provide more definitive evidence of the risk of radon at lower concentrations typically found in homes, as compared with the concentrations in mines. Taken together they provide important new documentation of the seriousness of radon as an environmental health risk.
RADON ACTION WEEK
OCTOBER 15-21, 2000

Once again, municipalities and other interested organizations are being invited to participate in Radon Action Week activities. Governor Christine Todd Whitman will proclaim Radon Action Week as a statewide event, President Bill Clinton will sign a national Radon Action Week proclamation, and local municipalities are invited to issue similar proclamations.

If you would like to initiate local activities, contact Judy Morgan, 1-800-648-0394, for a list of suggestions and order form for materials (these are also on the radon website, www.state.nj.us/dep/rpp/index.htm). This year a flyer has been developed entitled “Take the Radon Test”, with six eye-catching questions about radon (answers are on the back).

Other Radon Action Week activities will include DEP speakers on radio talk shows and an editorial from Commissioner Robert Shinn addressing radon.

Questions & Answers

Question: Can Measurement Technicians answer homeowners’ questions about radon?

Answer: Apparently some Technicians have the impression that the Radon Program requires that Technicians refer homeowners’ questions about radon to Measurement Specialists. This is not the current view of the Radon Program. The New Jersey course for Measurement Technicians covers most of the basic radon concepts and information that homeowners are likely to ask about. Technicians should therefore feel free to respond to questions that they have the background to answer. More technical questions can be referred to Measurement Specialists or to the NJDEP Radon Information Line, as needed.

Municipalities Honored for Outreach Programs

On September 21, 2000, three communities were recognized for outstanding local radon education programs, at a meeting of the New Jersey Health Officers Association. NJDEP officials presented awards to Leona Ballinger, Municipal Clerk of Harrison Township (Gloucester County); Carol Chamberlain, Health Officer of Lawrence Township (Mercer County); and Kevin Sumner, Health Officer, Middle Brook Regional Health Commission, for Warren Township (Somerset County).

The communities had conducted a variety of outreach activities including:
- reminder notices about radon in the municipal newsletters and web pages
- displays at public buildings
- public service announcements on local radio and television
- presentations to local groups
- sale of radon test kits at low prices
- Radon Action Week proclamations

Congratulations and thanks to all three communities for their excellent efforts to reduce lung cancer risk for local residents!

Certification Exams

The next date for the certification examination is December 7, 2000. Kara Kroll can be contacted at 1-800-648-0394 for further information about the exams.

Radon Program Data

Between January 1 and June 30, 2000, the New Jersey Radon Information Line answered 4,153 calls and mailed out 1,204 packets of basic radon information.
Water Drainage in Mitigations

The Radon Program has received occasional complaints about mitigation systems that interfere with water drainage. One frustrated homeowner, for example, ripped out all the mitigation-related sealant from his French drains when his basement flooded during Hurricane Floyd last year.

The radon standards clearly state that “Perimeter (channel or French) drains should be sealed with backer rods and urethane or comparable sealants in a manner that will retain the channel feature as a water control system” (14.7.3, EPA Radon Mitigation Standards, October 1993, revised April 1994).

How can proper water drainage be ensured? Conversations with several mitigation companies revealed a variety of strategies, including the following.

1) The sealant is placed in the French drain below the level of the basement floor, so that the channel continues to function. An objection voiced by a waterproofing company was that it is difficult to grade the sealant properly so that it flows toward the sump pump.

2) Gaps are left in the sealant at periodic intervals so that water can still enter the French drain. However, according to the waterproofing company, there is the possibility that the gaps will become clogged by debris in the event of flooding.

3) The sealant is extended out only 8 feet from the pipe in either direction along the French drain. A radon test is done and, if it’s below 4, no further sealing is done. The drawback to this approach is that the sealing is not complete and may result in higher radon levels than if the sealing were complete, resulting in less risk reduction for the residents.

4) Plastic sheets (flashing) can be installed along block walls that have weep holes at the bottom. The flashing extends into the French drain, which is then filled with concrete except for the gap between the wall and flashing. This approach handles water entering from the walls, but would not accommodate water from pipe bursts.

The Radon Program has requested that this issue be explored at the national level through the Conference of Radiation Control Program Directors. In the meantime, we would welcome hearing from other New Jersey mitigation companies about how they have dealt with this problem, and what seems to be the best solution. Mitigation approaches that are modifications to the EPA guidance are acceptable as long as they can be shown to meet the criterion of reducing radon levels to below 4 pCi/L.

Please email Judy Morgan with your comments at jmorgan@dep.state.nj.us or call her at 609-984-5434.

New Database Program in Development

The Radon Program has contracted with SystemetriX Design Group to develop an interactive database management system.

The new database will provide the following benefits:

- Direct access to the database for all bureau staff.
- Automated invoice, payment, enforcement, certification, and letter processing.
- Canned reports for statistical information.
- Efficient tracking of state and national goals for radon testing and mitigation.

Newsletter on Website

Issues of Radon News can now also be accessed from the Radon Program website, www.state.nj.us/dep/rpp/index.htm.

AARST SYMPOSIUM

The AARST symposium, “2000 International Radon Symposium: The Radon Industry: Past, Present and Future”, will be held October 22-25, 2000, in Milwaukee, Wisconsin. The symposium is being conducted in conjunction with the National Radon Conference sponsored by the Conference of Radiation Control Program Directors. For more information, write to AARST Secretariat, 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101.
NEW CONTINUING EDUCATION OPTION

The Radon Program is offering a new option for acquiring continuing education units: organizing and conducting radon public education programs. This will be of particular relevance to radon professionals who have already taken most of the continuing education courses available.

How will this option work? In a few cases, radon professionals have already arranged with the Radon Program to receive continuing education credit for conducting workshops or seminars on radon. This process will now be more formalized.

Radon professionals interested in utilizing this option should contact Dr. Herbert Roy at 1-800-648-0394 and send him in writing a proposal for the education project. The proposal must include a description of the project, an estimate of the time involved, and a process for documenting that the project was done. Dr. Roy will return a letter confirming approval of the proposal or indicating additional information needed.

The continuing education credit will be provided after satisfactory documentation is received. Documentation would include a letter from the sponsoring organization (such as a civic club, high school, or scout troop) on the organization’s letterhead indicating the times, dates and lengths of the presentations or events, and number of people attending; and a copy of the actual presentation and any overheads developed.

If a particular course were newly developed material, one hour of credit would be provided for each hour of presentation. Several presentations could be made during the year based on the same material.

Organizations that might be interested in co-sponsoring radon education programs include: health departments, schools and colleges, and civic organizations (many of which are listed in the yellow pages of the phone book under ‘associations’).

The Radon Outreach Program has printed materials that can be obtained in limited quantity and reproduced if needed, for use in educational projects. Contact Judy Morgan, Outreach Coordinator, regarding materials.

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