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## Radon: An Environmental Problem That is Too Close to Home

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# RADON: AN ENVIRONMENTAL PROBLEM THAT IS TOO CLOSE TO HOME

## INTRODUCTION

When the topic of nuclear radiation poison is considered, many persons' thoughts turn to the tragedies of the past. They recall Three-Mile Island, Chernobyl, and the devastation of Hiroshima and Nagasaki. Others paint futuristic images of world annihilation and recite the need for extensive nuclear arms reduction. Today, civilized man is immersed in the nuclear age and cannot help but fear that his science and technology has opened a "Pandora's Box" that will lead to the world's demise. This fear is derived from historical conscience and nurtured by the recognition of human fallibility. The result of this fear is an unwillingness to accept the reality that the threat of nuclear radiation presents. Many people find solace in the belief that although the problem exists, its existence is somewhat distant from their own. However, the American consciousness has recently awoken to the discovery that a major source of nuclear radiation lies much closer than they would care to think. In fact, it lies even closer than their own backyards.

"The nation's number-one nuclear radiation problem is caused by naturally occurring radon gas in homes."<sup>1</sup> The irony of this fact is striking for two reasons. First, while the Environmental Protection Agency ("EPA") estimates that man-made pollutants from all sources may cause up to 2,000 cancer deaths a year, naturally produced radon gas is estimated to cause 20,000 lung cancer deaths annually.<sup>2</sup> "While some individuals will vehemently oppose siting of a hazardous waste facility anywhere inside their state, they may not be willing to spend \$20 to have their homes tested for radon gas contamination, which could present a substantially higher health risk."<sup>3</sup> Second, although it has been known for some years that radon is a serious problem, little legislative and administrative action has been created to address this health hazard.

This comment will strive to examine (1) the nature of the radon problem, (2) the causes of administrative and legislative lethargy, (3) the actions of state governments to address the problem and (4) the likely direction that the country will take to alleviate the problem.

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1. Wall Street Journal, Oct. 10, 1985, at 32, col. 3.

2. *Public Apathy Said Barrier to Control of Indoor Air Contamination by Radon Gas*, 17 [Current Developments] Env't Rep. (BNA) 1793 (Feb. 20, 1987).

3. *Id.*

## THE NATURE AND EXTENT OF THE RADON PROBLEM

Because of the complexity of the technical data involved in understanding the effects of radon radiation, and its general qualities, a brief explanation of radon is appropriate at this point.<sup>4</sup> Uranium, which can be found almost everywhere within the earth's core is the original element from which radon is derived. As uranium goes through its natural decomposition, it turns into radium. The radium then continues to decompose giving off radon gas. This gas cannot penetrate the human skin but can be inhaled or ingested through contaminated food and drinking water.<sup>5</sup> The radon becomes harmful when it enters a human's lungs and settles on the organ's inner lining.<sup>6</sup> Here, radioactive particles can accumulate and alter the human cells they come in contact with. They will not kill the cell, but rather, alter its reproduction, causing it to multiply at an accelerated rate. Eventually, this hastened multiplication causes the formation of a lump large enough to be recognized as a cancer.<sup>7</sup> Because of the amount of time that exists between exposure and diagnosis (called the "latency period"), it is often difficult to pinpoint the exact time of radioactive exposure, or whether radiation was the cause of the cancer at all.<sup>8</sup>

Radon concentrations are measured by one of two methods. First, since radioactive particles are caused by decomposition of matter, nuclear physicists discuss concentration in terms of the amount of radioactive particles that are decomposed per second. The resulting measure of concentration is therefore measured by the number of decompositions made per second for each liter of air. This measurement is called a *picoCurie* per liter ("*pCi/L*").<sup>9</sup> To give some perspective on what is considered a "safe level" of radon measured in *pCi/L*, the EPA states that the concentration of radon in a house should not exceed 4 *pCi/L*. However, there is some discrepancy as to

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4. For an exhaustive explanation of the effects of radiation on the human body, and on radiation theory in general. See, *Allen v. United States*, 588 F. Supp. 247 (C.D. Utah 1984).

5. *Johnson v. United States*, 597 F. Supp. 374, 386 (D. Kan. 1984).

6. *Id.* See also *Radon and Indoor Air Pollution, 1985: Hearing Before the Subcomm. on Natural Resources, Agricultural Research and Environment of the House Comm. on Science and Technology*, 99th Cong., 1st Sess. (1985) [hereinafter *Hearing*].

7. *Johnson*, 597 F. Supp. at 385.

8. This is one of the difficulties in litigating cases involving radon victims. See *infra* text accompanying notes 66 - 68. "The first epidemiological evidence of a direct link between lung cancer and exposure to radon in structures was confirmed in a series of studies on cancer victims and residences with high levels of radon which, however, have not yet been published or subjected to peer review." *Link Between Radon Exposure, Cancer Said Confirmed by Swedish Epidemiological Study*, 16 [Current Developments] *Env't Rep. (BNA)* 1809 (Jan. 31, 1986).

9. 1 Curie equals  $3.7 \times 10^{10}$  disintegrations per second. 1 *picoCurie* equals 10<sup>-12</sup> Curie or .037 disintegrations per second. 27 *picoCurie* would be the equivalent of one disintegration per second. *Allen*, 588 F. Supp. at 275.

the accuracy of this number. One radon testing company will not recommend remedial measures until the level reaches over 80 pCi/L. To date, the upper limit of radon concentration reaches to about 1000 pCi/L.<sup>10</sup> Presently, the EPA has a policy recommending remedial action within several months when levels of radon reach between 20 and 200 pCi/L, and the agency suggests that action be taken within a few years when the levels are between 4 and 20 pCi/L.<sup>11</sup> Bernard Cohen, a University of Pittsburgh physicist who is overseeing a nationwide survey of radon in homes believes that the 4 pCi/L levels are arbitrary and suggests that additional research must be done before an accurate safe level can be found.<sup>12</sup>

The other method of measuring radon concentration is used by persons who are less proficient in nuclear physics. This method measures the amount of alpha-ray energy that is in the air and is called a "Working Level" ("WL").<sup>13</sup> The safe measure of radon allowable is .02 WL.<sup>14</sup> One Pennsylvania home recorded Working Levels of 13.5 in their basement, 12.4 in their family room, and over 8.0 in the other rooms in the house. "Living in the environment of [this] home would add an annual risk of death due to lung cancer of thirteen percent and a lifetime risk of 585%. This is the equivalent of smoking 135 packs of cigarettes a day or having 455,000 chest x-rays per year."<sup>15</sup>

Most of the radon that is causing a problem in U.S. homes is produced naturally within the earth's core. However, radon leaks can occur when nuclear waste is improperly disposed of.<sup>16</sup> It seeps through porous rocks,

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10. *Tens of Thousands of Homeowners Check for Indoor Radon in Response to Information, Direction from State, Federal Regulators*, 17 [Current Developments] Env't Rep. (BNA) 928 (Oct. 17, 1986) [hereinafter *Homeowners*].

11. *Draft Pamphlets on Radon for Homeowners Set Recommended Level for Remedial Action*, 16 [Current Developments] Env't Rep. (BNA) 2232 (April 18, 1986). Although several methods of detection, exist the most popular is a canister filled with charcoal. All that is required to conduct the test is to expose the canister to the air for one week, reseal it, and have a lab analyze the results. Kits can be purchased from the University of Pittsburgh for \$12 each. To obtain a kit, mail to Radon Project, Physics Department, University of Pittsburgh, Pittsburgh, Pennsylvania 15260. 16 [Current Developments] Env't Rep. (BNA) 1892 (Feb. 14, 1986).

12. *Homeowners*, *supra* note 10, at 928.

13. "a working level is defined as any combination of the short half life radon decay products which ultimately emits  $1.3 \times 10^5$  million electron volts of alpha-ray energy in one liter of air." *Hearing*, *supra* note 6, at 27 (report of Office of Radiation Programs U.S.E.P.A.).

14. *Id.* EPA uses this standard because it is the same standard used for cleanup of mill tailings in Colorado and phosphate waste in Florida. *See, Link Between Radon Exposure, Cancer Said Confirmed by Swedish Epidemiological Study*, 16 [Current Developments] Env't Rep. (BNA) 1809 (Jan. 31, 1986).

15. *Hearing*, *supra* note 6, at 92 (testimony of Stanley J. Watras).

16. *See, e.g. Warwick v. New Jersey Dep't of Env'tl. Protection*, 647 F. Supp. 1322 (S.D.N.Y. 1986).

and through cracks or pores in a home's foundation and thus becomes trapped inside the enclosed space of the house. Depending on a home's ventilation, the radiation can accumulate and concentrate enough to become a health hazard. Unfortunately, the energy crisis of the past decade has encouraged Americans to insulate and seal their homes to make for more efficient use of heating and cooling energy. This has increased the health risk caused by an accumulation of radon by reducing fresh air flow through the house.<sup>17</sup>

Several alternatives exist for "curing" a home's radon problems. First, sealing up holes and cracks in basement floors could effectively reduce the amount of radon gas that enters a home. Second, increased ventilation throughout the home would prevent accumulations from developing. Finally, a device could be placed below the foundation of the home to redirect the gas entering through the floors, dispersing it into the open air.<sup>18</sup> Of course, the first two remedial measures are the least expensive to implement. A device that goes below a home's foundation costs between \$450 and \$600. Coupled with the necessary assessment and installation costs, Karim Rimawi, the Director of New York State Health Department's Bureau of Environmental Radiation Protection believes that average remedial measures cost between \$1000 and \$2000 to perform.<sup>19</sup>

The EPA is presently discovering the scope of this problem by initiating federally sponsored programs to randomly sample the radon levels in homes throughout the United States.<sup>20</sup> In addition, a survey of radon levels is being prepared by Bernard Cohen from the University of Pittsburgh.<sup>21</sup> There is presently, however, sufficient evidence to characterize the radon problem as a "national" concern. The EPA has already found that dangerous levels of radon exist in many states.<sup>22</sup>

One area has become a significant focal point of the development of the radon problem. The Reading Prong, a vast stretch of land that extends

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17. See generally Wall Street Journal, *supra* note 1.

18. *Homeowners*, *supra* note 10, at 928.

19. *Id.*

20. *10 States to Receive EPA Aid in Program to Measure Radon Levels in U.S. Homes*, 17 [Current Developments] *Env't Rep. (BNA)* 971 (Oct. 24, 1986). *Radon Survey Shows Widespread Problem, Need for Home-By-Home Analysis, EPA Says*, 18 [Current Developments] *Env't Rep. (BNA)* 922 (Aug. 7, 1987). The EPA was given authority to conduct research in the area of indoor radon problems under the Radon Gas and Indoor Quality Research Act of 1986. This act was passed as Article IV of the Superfund Amendments and Reauthorization Act of 1987, Pub. L. No. 99-499, 401-05, 100 Stat. 1613, 1758-60 (1986), and is presently codified as a note to 42 U.S.C.A. § 7401 (West Supp. 1987). An analysis of this statute and its impact are included within this comment. See *infra* text accompanying notes 53-57.

21. *Homeowners*, *supra* note 10, at 928.

22. *Hearing*, *supra* note 6, at 78 (statement of Robert G. Torricelli).

through Pennsylvania, New Jersey and New York records many of the highest radon levels found in U.S. homes.<sup>23</sup> Studies show that forty percent of homes surveyed in that area of Pennsylvania are infected with high concentrations of radon gas. The New Jersey Department of Environmental Protection ("NJDEP") estimates that 250,000 homes are affected in their state.<sup>24</sup> Thus, in response to media attention and increased public awareness, these states have become the most progressive in dealing with the radon problem.<sup>25</sup>

Surprisingly, even in states where the public has been apprised of the radon problem, they have shown little concern for seeking a solution. Public apathy appears to be the most compelling problem that radon remediation faces.<sup>26</sup> Recently, in Vernon, New Jersey, five thousand town residents prevented trucks carrying radon contaminated soil from entering a dump site located within their municipality.<sup>27</sup> It is ironic that property owners will go to such extreme lengths to prevent the industrial contamination of their environment but will remain silent when the contamination occurs naturally. A public sampling made within New Jersey revealed that:

Ninety percent of those surveyed knew that radon was a potentially carcinogenic radioactive gas that could seep up through the soil and into the basements of their homes. However, 50 percent said they were not concerned about the problem, and 60 percent said there was no need to decrease household radon levels quickly.<sup>28</sup>

Almost all of the people believed that discovery of radon would have an adverse effect on the property value in their neighborhood.<sup>29</sup> Public apathy such as this can only be corrected by state and federal efforts to increase awareness of the harmful nature of radon concentration.

#### FEDERAL ADMINISTRATIVE ACTIONS

The federal government's first concern for air quality was limited in scope

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23. *Lautenberg Accuses EPA, OMB of "Cover-up" of Agency Report on Health Risks of Radon*, 16 [Current Developments] Env't Rep. (BNA) 1046 (Oct. 18, 1985).

24. *Hearing, supra* note 6, at 78 (statement of Frank Lautenberg).

25. *See infra* text accompanying notes 62-65.

26. *Indoor Radon, Second Cause of Lung Cancer, Has Spurred Little Public Interest, Officials Says*, 17 [Current Developments] Env't Rep. (BNA) 2005 (March 27, 1987); *Public Apathy Said Barrier to Control of Indoor Air Contamination by Radon Gas*, 17 [Current Developments] Env't Rep. (BNA) 1793 (Feb. 20, 1987).

27. *Id.*

28. *Public Apathy Said Barrier to Control of Indoor Air Contamination by Radon Gas*, 17 [Current Developments] Env't Rep. (BNA) 1793 (Feb. 20, 1987).

29. *Id.*

to include only air pollution problems occurring out-of-doors. In 1970, the Clean Air Act was amended to empower the EPA to regulate a wide variety of air pollutants.<sup>30</sup> However, it ignored the problems of indoor air pollution. This oversight essentially sets the stage for treatment of the radon problem by administrative agencies.

Through the seventies, public attention grew regarding the problems relating to indoor air. The government sponsored some groundbreaking research in the areas of household air pollution and substances such as formaldehyde and radon were subjects of this early EPA effort.<sup>31</sup> The concern for radon and its effects within the home arose primarily in areas where houses had been built over abandoned uranium mines. As a result of this concern, federal agencies made an effort to establish safe levels of radon within those mines.<sup>32</sup> However, regulation, or safety standards for homes built on radon-rich soils have never been promulgated.

The recent surge of media interest in radon began in 1984 when the employee of a Pennsylvania nuclear power plant found extraordinarily high levels of radon within his home.<sup>33</sup> Investigation into this "naturally" occurring radon problem led to the discovery that many houses across the United States are experiencing concentrations of radon high enough to be characterized as health risks.<sup>34</sup> Still, after over ten years of knowing of radon's potential harm, little has been done on a federal level to improve the situation.

Some critics of federal administrative procedure argue that radon is not alone as an area where substantial direction is needed for federal regulation. In their eyes, the entire regulatory process is hampered by excessive wastes of time.<sup>35</sup> According to one commentator, one source of this delay is the Office of Management and Budget ("OMB"), an arm of the executive branch.<sup>36</sup> One of the Reagan Administration's first actions upon coming

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30. 42 U.S.C. § 7401 *et. seq.* (1982).

31. U.S. Environmental Protection Agency Report to Congress on Indoor Air Pollution and Radon under Title IV Superfund Amendments and Reauthorization Act of 1986 at 4 (April 1987) [hereinafter Report].

32. See 36 Fed. Reg. 9480 (1971) (Incorporated into 30 C.F.R. § 57.5-42 (1984)). Recent efforts to lower the safety standards in mines have been waylaid by administrative procedure. In *Oil, Chemical & Atomic Workers International v. Zegeer*, 768 F.2d 1480 (D.C. Cir. 1985), a union was striving to hasten the administration's actions in adopting a lower "safe level" of radon gas in mines. The change was proposed in 1980 and has not yet been promulgated after seven years of consideration.

33. Report, *supra* note 31, at 4.

34. *Radon Survey Shows Widespread Problem, Need for Home-By-Home Analysis*, EPA Says, 18 [Current Developments] Env't Rep. (BNA) 992 (Aug. 7, 1987).

35. Morrison, *OMB Interference with Agency Rulemaking: The Wrong Way to Write a Regulation*, 99 HARV. L. REV. 1059, 1065 (1986).

36. *Id.*

into office was to issue Executive Order No. 12,291<sup>37</sup> which laid out a series of procedures that OMB was to follow in supervising agency regulatory actions. In an aberration of cost/benefit analysis, OMB is mandated to consider the industry impact of all executive agency rules.<sup>38</sup> OMB is required to conduct lengthy reviews and public commentary periods which increase the time frame for regulation implementation. As one author states:

The Administration has principally used the system of OMB review created by the Executive Orders to implement a myopic vision of the regulatory process which places the elimination of cost to industry above all other considerations. In doing so, however, the Administration has imposed a significant price on the public resulting from the delay it causes in the adoption of needed protections. While OMB ponders the validity of a proposed rule, or the agency's responses to public comments, the failure to issue health and safety rules is certain to mean deaths and injuries that could be avoided.<sup>39</sup>

Senator Frank R. Lautenberg of New Jersey accuses OMB of a similar interference in the regulatory activities of the EPA.<sup>40</sup> Citing past refusals of the OMB to pass safety regulations,<sup>41</sup> the senator goes on to testify about the EPA's 1986 budget request for indoor air pollution reform. This request was eliminated by OMB.<sup>42</sup> Likewise, this year a study was done to develop a strategy for dealing with the radon problem. This research was scandalously sanitized from the EPA monthly report.<sup>43</sup> Again, this year's budget request by EPA was quashed under OMB review.<sup>44</sup>

OMB's defense for their refusal to permit EPA action is that there is no authority for EPA to act in regulating indoor air pollution.<sup>45</sup> Whatever the resolution to this issue is, some steps must be taken—whether by OMB permission or by congressional legislation—to allow for such action against ra-

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37. Exec. Order No. 12,291, 3 C.F.R. 127 (1981), reprinted in 5 U.S.C. § 601, at 431 (1982).

38. For an excellent overview of cost-benefit analysis, See, W. FOX, UNDERSTANDING ADMINISTRATIVE LAW, § 42 (1986).

39. Morrison, *supra* note 35, at 1065.

40. *Hearing, supra* note 6, at 7 (statement of Frank Lautenberg).

41. "[T]he same OMB that refused for months to release EPA Regulations to protect our drinking water, the same OMB that killed recommendations from EPA to ban asbestos, the same OMB that has extended its invisible web over innumerable health and safety regulations and stopped them dead in their tracks." *Id.*

42. *Id.* at 8.

43. All budget information, discussion of options, and information on the benefits of an EPA initiated program were suspiciously removed from the EPA's report. *Id.* at 8-9.

44. *Id.* at 9.

45. See generally N.Y. Times, Oct. 10, 1985, at 10, col. 1.

don gas.<sup>46</sup> The General Accounting Office ("GAO") recently reported to Congress that there was no clear statutory authority under the Clean Air Act or other laws directing the EPA to address the radon problem. However, the report did state that EPA would be the "logical choice" for the task.<sup>47</sup>

In a recent report to Congress,<sup>48</sup> the EPA presented its strategy for dealing with the radon problem. Their efforts are aimed at educating the public as to the risks involved in disregarding the radon hazard. They also have begun efforts to assess the scope of the problem,<sup>49</sup> and to instruct state agencies on methods of preventing radon concentration. The EPA does not intend to set mandatory safety levels for homeowners to follow, but rather, they seek to educate and allow the private citizen and local government to

46. Morrison proposes that "Congress should step in and prevent OMB intervention in agency rulemaking by precluding OMB from carrying out the functions it has assumed under both Executive Orders. Thus . . . Congress should prohibit all OMB involvement in the substance of agency rulemakings, except through on-the-record comments that any interested person, either inside or outside government, could submit." Morrison, *supra* note 35, at 1071.

47. *GAO Says EPA Best Suited to Lead Effort to Control "National Problem" of Radon Gas*, 17 [Current Developments] *Env't Rep. (BNA)* 407 (July 11, 1986).

48. EPA set forth the following objectives for addressing the radon problem:

1. *The Agency will conduct research and analysis to further refine its assessment of the nature and magnitude of the health and welfare problems posed by individual air pollutants as well as pollutant mixtures indoors.* Such research will focus in the near term on improvement of exposure data, continued development and testing of modeling tools necessary to perform essential risk assessments and the development and consolidation of data bases. Development of appropriate ranking and risk assessment tools will be a top priority in this effort.

2. *The Agency will identify and assess the full range of mitigation strategies available to address high priority indoor air pollution problems.* Equal emphasis will be placed on strategies which reduce or eliminate the source of the risk as well as on more generic strategies which may reduce exposures, and thus risks, to multiple pollutants simultaneously (e.g. ventilation-related strategies).

3. *For identified high risk, high priority problems, the Agency will adopt and execute appropriate mitigation strategies.* These mitigation strategies may involve one or more of the following:

- issuing regulations (under existing regulatory authorities (e.g. TSCA, FIFRA, Safe Drinking Water Act);
- building State and local government and private sector capability to address indoor air quality problems through non-regulatory programs of information dissemination, technical assistance, guidance, and training;
- referring problems to other Federal agencies with appropriate statutory authority (e.g. CPSC, HUD);
- requesting separate indoor air regulatory authority from Congress if deemed necessary.

EPA INDOOR AIR QUALITY IMPLEMENTATION PLAN (A Report to Congress Under Title IV of the Superfund Amendments and Reauthorization Act of 1986: Radon Gas and Indoor Air Quality Research) (June, 1987) (Emphasis in original).

49. See *supra* text accompanying notes 20-22.

decide what actions to take.<sup>50</sup> As EPA's Deputy Administrator, A. James Barnes stated, the Agency was attacking the radon problem by using a "unique Federal-State partnership."<sup>51</sup> Currently, at least sixteen different agencies are trying to address the radon issue. However, their shotgun approach presently lacks the focus and organization to be effective.<sup>52</sup>

#### LEGISLATIVE ACTIONS

The only federal legislation on the books today addressing the radon issue does little to correct the administrative deadlock on radon reform. In fact, the Radon Gas and Indoor Air Quality Research Act of 1986 ("Act")<sup>53</sup> does little more than reinforce federal administrative inactivity. Section 404 of the Act specifically limits the power of the EPA to research and information dissemination.<sup>54</sup> As a result, no regulatory programs may be initiated on the federal level. The Act was successful, however, to the extent that it forced the EPA to articulate an organized policy statement. In two reports to Congress,<sup>55</sup> the Agency sets out specific goals and strategies for addressing the radon problem.

Congress, perhaps realizing the inadequacy of the 1986 legislation has been working on a new bill that would broaden the EPA's authority. The new bill<sup>56</sup> would accomplish several objectives:

1. It would authorize ten million dollars in grants to aid states with their own radon programs.
2. It would initiate a survey and assessment of the radon problem in schools.
3. It would authorize radon studies in federal buildings.
4. It would enable the EPA to establish a certification program

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50. *EPA Issues Radon Guidance to Homeowners Advising When Mitigation Efforts are Needed*, 17 [Current Developments] Env't Rep. (BNA) 596 (Aug. 22, 1986).

51. *Id.*

52. *Indoor Air Cited as Major Health Threat; Witnesses Say EPA Should Oversee Regulation*, 18 [Current Developments] Env't Rep. (BNA) 5 (May 1, 1987).

53. Pub. L. No. 99-499, § 401-05, 100 Stat. 1613, 1758-60 (1986) (presently codified as a note to 42 U.S.C.A. § 7401 (West Supp. 1987)).

54. Section 404 states:

Section 404. CONSTRUCTION OF TITLE.

Nothing in this title shall be construed to authorize the Administrator to carry out any regulatory program or any activity other than research, development, and related reporting, information dissemination, and coordination activities specified in this title. Nothing in this title shall be construed to limit the authority of the Administrator or any other agency or instrumentality of the United States under any other authority of law.

55. See *supra* notes 31 and 48.

56. S. 744, 100th Cong., 1st Sess. (1987); H.R. 2837, 100th Cong., 1st Sess. (1987).

for firms dealing with radon detection.<sup>57</sup>

The Senate bill, sponsored by Senators George J. Mitchell (D-Maine) and John H. Chafee (R-Rhode Island) was passed on July 8, 1987.<sup>58</sup> The corresponding House bill, sponsored by Thomas A. Luken (D-Ohio) was unanimously approved on July 1, 1987, by the House Energy and Commerce Subcommittee on Transportation, Tourism, and Hazardous Materials.<sup>59</sup> Although it has not yet been put to the floor of the House, hopes are high that this new legislation will be enacted by the end of this year. Legislation such as this is necessary to broaden the powers of the EPA and to hasten needed reforms. However, the brunt of congressional activity strives to inform the public and to provide states with the skills and equipment necessary to assess the extent of the problem and to take action against it.<sup>60</sup> As one commentator says, "[t]hose recommendations which now exist for solving the problems in homes can be things that people could do themselves. So this is not a program where the Federal Government would either be entering homes or doing massive construction or massive expenditures."<sup>61</sup>

## STATE ACTIONS

### *Legislative and Administrative*

Recent media attention has promoted a number of state governments to take action addressing the radon problem. Although the most progressive states are Pennsylvania, New Jersey, and New York, at least fifteen states are presently starting radon level surveys or are exploring alternatives in dealing with the problem.<sup>62</sup> It is helpful to survey the recent actions of the three most innovative states.

#### *Pennsylvania*

Pennsylvania offers the most comprehensive "package" of investigative and remedial measures. It begins by emphasizing research and development of practical techniques that will mitigate the damage that radon causes. The state also stresses public awareness. To that end, it has a toll-free information hotline to answer resident's questions about radon. Also, extensive in-

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57. *Two Radon-Related Bills Introduced in Senate, One for State Grants, Other for Schools Survey*, 17 [Current Developments] *Env't Rep.* (BNA) 1925 (Mar. 20, 1987). Eventually, the two Senate bills were combined to the single bill: S. 744.

58. *Senate Approves Radon Control Bill*, 11 *CHEM. REG. REP.* (BNA) 695 (July 10, 1987).

59. *Id.*

60. *Hearing, supra* note 6, at 78 (statement of Robert G. Torricelli).

61. *Id.*

62. *EPA to Offer Information to Help Owners Decide on Home Radon Controls*, 16 [Current Developments] *Env't Rep.* (BNA) 2011 (Feb. 28, 1986).

formation is disbursed through leaflets and seminars. The state offers free radon testing to residents on the Reading Prong and subsidized loans to all residents of the state so that remedial measures might be taken.<sup>63</sup>

#### *New Jersey*

The New Jersey state legislature has passed a law requiring the NJDEP to regulate radon repairs and mandating that the agency promulgate regulations for contractors sometime this year. The state provides a free confirmation test to persons wishing to corroborate the results of a commercial test. The state also operates an information hotline and offers seminars and workshops for radon detection crews. Much of the state's efforts are presently directed toward research and development.<sup>64</sup>

#### *New York*

New York's emphasis has recently been on assessing the scope of the problem in their state, and increasing public awareness. New York's Department of Environmental Protection provides free radon sampling equipment to homeowners who participate in state energy conservation programs. For those who do not participate, the testing equipment is available at cost. The state initiates extensive dissemination of information pamphlets and organizes several radon workshops. State subsidized remediation is presently at issue in the New York legislature.<sup>65</sup>

#### *Judicial*

*"Non debet alteri per alterum iniqua conditio inferri."*<sup>66</sup> This maxim of common law tort theory presents the dilemma that exists concerning litigation of radon gas claims.<sup>67</sup> The major problem is that of finding a defendant because, as previously noted, the radon enters a home naturally. There is no deep-pocketed corporation that caused the damage and that is amenable to suit. As a result, only cases dealing with unnaturally created radon levels

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63. *Homeowners*, *supra* note 10, at 929.

64. *Id.*

65. *Id.*

66. BLACK'S LAW DICTIONARY, 949 (5th ed. 1979). A burdensome condition ought not to be brought upon one man by the act of another.

67. When this article speaks of tort claims, it is not referring to the medical claims of a victim claiming to have been injured by the radiation. The claims referred to here involve those of wrongful eviction or damage to property. Their goal is recovery of costs to repair the property, making it safe to live in again. This year alone, massive works have been written on the theories of recovery for toxic tort victims. See, e.g., *Symposium: Causation and Financial Compensation*, 73 GEO. L.J. 1355 (1985); Note, *Developments in the Law—Toxic Waste Litigation*, 99 HARV. L. REV. 1462 (1986).

have recourse in the courts. However, even in a case such as this, recovery is unlikely since obstacles like statutes of limitations and proofs of fact prevent successful outcomes.

One case presently before a federal district court in New York provides an interesting presentation of how judicial decisions can be effective in combating the radon problem. In *Warwick v. New Jersey Department of Environmental Protection*,<sup>68</sup> a township in New York was seeking injunctive relief from the NJDEP's decision to remove toxic radon emitting soil from the townships of northern New Jersey, and disposing it in the valley town of Vernon. This is very close to the New York town of Warwick, the plaintiffs in this suit. They feared that the porous soil and water table that exist in Vernon would have caused their own land and water supply to become polluted.<sup>69</sup> A temporary restraining order was granted by a New Jersey state court in a related action, *Township of Vernon and County of Sussex v. Department of Environmental Protection*.<sup>70</sup>

Although the NJDEP discontinued its plans while the New York court had only considered questions of jurisdiction and motions for change of venue,<sup>71</sup> the granting of this injunction could have had significant effects on how neighboring state governments might deal with the radon problem. It seems that the courts could be most effective through equity actions such as that presented in this case, rather than trying to overextend the reach of modern tort law.

One area where courts could be very effective in correcting the radon problem is in real estate transactions. Although no cases have been brought on this issue, it seems likely that a buyer who is faced with a home that has large radon repair costs might seek recovery from the seller. The foreshadowing of this type of action can be seen in the contract clause that the New Jersey Association of Realtors wishes to add to their standard real estate sales contract. The clause informs the buyer that "high levels of radon have been found in the area and that, if buyer bears the expense of a radon test, the seller then will be obligated to remediate."<sup>72</sup> According to state officials, "a radon test practically has become *de rigeur* when property changes hands."<sup>73</sup>

Other issues that are likely to come before state courts are possible landlord liability for failing to protect his tenants from the risk of radon, liability

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68. 647 F. Supp. 1322 (S.D.N.Y. 1986).

69. *Id.*

70. 17 [Current Developments] Env't Rep. (BNA) 409 (N.J. Sup. Ct. 1986).

71. *Warwick*, 647 F. Supp. 1322.

72. Homeowners, *supra* note 10, at 929.

73. *Id.* at 928.

that might arise from a school building with radon problems, and construction company or architect's liability for failing to insure that new houses are adequately protected. One radon testing company representative recently stated that a majority of his business involved consulting work for developers and builders.<sup>74</sup> The concern that builders are expressing by this type of investment shows that there is at least some threat of suit for neglecting to build a safe house. The court's reaction to these types of issues will be something of interest for future writers.

#### FUTURE ACTIONS

Now that the momentum is picking up as an increasing number of persons become aware of the problem, what type of changes can be expected in the near future? One recent development that may have an enormous effect on federal action is the creation of a public policy group to focus on the radon problem. The group is called the National Counsel for Clean Indoor Air and is funded by industries and foundations. They expect to use their 1987 budget to inform congressional leaders of the threat that radon poses to this nation.<sup>75</sup> As the OMB impasse is finally overcome by congressional action, more EPA activity in areas of research and assessment can be expected. Finally, as more states become aware of the pressing need for radon measures, statutes and policies will be implemented to curtail the damaging effects of radon gas.

#### CONCLUSION

The foregoing discussion presents an issue that until only recently, was considered "low priority" by our federal government.<sup>76</sup> When it was finally elevated to the status of a national concern,<sup>77</sup> steps were commenced on the federal and state level to address the problem. Presently, most of the efforts of our leaders have been directed toward research and assessment of the problem. However, this is not going to reduce the 20,000 deaths each year that are attributable to radon-caused lung cancer. The most important step that any organization can take right now is to strive to overcome the apathy that many persons feel toward the problem. Public education must make

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74. *Id.*

75. *Public Policy Group Formed on Indoor Air to Push for More Research on Radon, Smoking*, 17 [Current Developments] *Env't Rep.* (BNA) 604 (Aug. 22, 1986).

76. *Lautenberg Accuses EPA, OMB of "Cover-up" of Agency Report on Health Risks of Radon*, 16 [Current Developments] *Env't Rep.* (BNA) 1046 (Oct. 18, 1985).

77. *Id.*

homeowners aware of the immediate dangers that radon is causing.<sup>78</sup>

*Andy Quinn*

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78. The following are materials available concerning radon:  
"A Citizen's Guide to Radon: What it is and What to do About it."  
-and-

"Radon Reduction Methods: A Homeowner's Guide"  
available through:

EPA Public Information Center  
Mail Code PM-211B  
820 Quincy Street, N.W.  
Washington, D.C. 20011

"Radon Reduction Techniques for Detached Houses: Technical Guidance"  
available through:

EPA Center for Environmental Research  
Information  
25 West Saint Clare Street  
Cincinnati, Ohio 45268

"Air Pollution: Hazards of Indoor Radon Could Pose a National  
Health Problem." (GAO RCED-86-170)

available through: General Accounting Office  
P.O. Box 6015  
Gaithersburg, Maryland 20877