

# ELR

NEWS & ANALYSIS

## The Benefits of Community Medical Monitoring at Nuclear Weapons Production Sites: Lessons From Fernald

by Benjamin G. Gerhardstein and Phil Brown

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*Editors' Summary: A number of communities across our country host DOE nuclear weapons production facilities. This Article argues that although DOE has known about contamination caused by these facilities for decades, the federal government has not sufficiently addressed these communities' health concerns. It uses the Fernald community in Ohio, the only community to succeed in holding DOE accountable for these actions, as a case study to argue that the U.S. Congress should establish community medical monitoring programs at DOE nuclear weapons sites.*

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The U.S. Department of Energy's (DOE's) nuclear weapons production activities have resulted in radioactive and toxic contamination and higher health risks for a number of communities across the country.<sup>1</sup> Although DOE has known about this contamination for decades, the federal government has not sufficiently addressed these communities' health concerns. This Article uses the Fernald community in Ohio, the only community to succeed in holding DOE accountable for these actions, as a case study to argue that the U.S. Congress should establish community medical monitoring programs at DOE nuclear weapons sites. In

1987, the people who lived and worked near the Fernald, Ohio, Feed Materials Production Center, a DOE uranium processing plant, settled a class action lawsuit in *In re Fernald Litigation*.<sup>2</sup> The settlement required DOE to pay members of the Fernald community \$78 million for long-term medical monitoring, property value diminution, and emotional distress compensation. The Fernald community used part of the settlement funds to establish the Fernald Medical Monitoring Program (FMMP), the focus of this Article.

This Article explains how the FMMP provides substantial benefits to the Fernald community<sup>3</sup> and argues that federal legislation is needed to provide long-term monitoring services for communities near other nuclear weapons production sites. The federal government has a responsibility to offer medical monitoring programs to the communities that proudly hosted DOE nuclear weapons production sites, sacrificing clean environments and possibly healthier lives for the sake of national security.

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1. Nuclear weapons production sites where researchers have documented extensive contamination include the Fernald plant (Ohio), Hanford site (Washington), Los Alamos National Laboratory (New Mexico), Nevada test site (Nevada), Oak Ridge Reservation (Tennessee), Pantex plant (Texas), Rocky Flats plant (Colorado), and Savannah River site (South Carolina). National Center for Environmental Health, Centers for Disease Control & Prevention (CDC), *Radiation Studies*, at <http://www.cdc.gov/nceh/radiation/default.htm> (last visited Apr. 27, 2005) [hereinafter *Radiation Studies*]; ARJUN MAKHIJANI ET AL., *NUCLEAR WASTELANDS* 169-284 (Arjun Makhijani et al. eds., MIT Press 1995); OFFICE OF TECHNOLOGY ASSESSMENT (OTA), U.S. CONGRESS, *COMPLEX CLEANUP: THE ENVIRONMENTAL LEGACY OF NUCLEAR WEAPONS PRODUCTION* (OTA-0-484) (1991); OFFICE OF ENVIRONMENTAL MANAGEMENT, U.S. DOE, *FROM CLEANUP TO STEWARDSHIP* (DOE/EM-0466) (1999) [hereinafter U.S. DOE, *FROM CLEANUP TO STEWARDSHIP*].

2. No. C-1-85-0149 (S.D. Ohio Sept. 29, 1989).

3. Conclusions drawn about the FMMP are based mainly on qualitative research conducted by the authors. In-depth interviews were conducted with members of the Fernald settlement class, FMMP staff, and other individuals instrumental in establishing the FMMP. Many of the quotations in this Article are taken directly from those interviews and used with the respondent's permission. In total, 40 interviews were conducted, 35 of which were with Fernald settlement class members. Seventy-seven percent (27) of respondents were full participants in the FMMP, 11% (4) had participated (in terms of examinations) only minimally, and 11% (4) had never taken part in the program. Respondents were 63% (22) women and 37% (13) men. Their median age of 56 was close to the median age of all FMMP participants. All respondents had lived within five miles of the Fernald plant and 40% (14) had lived within two miles of the plant. At the time of the interviews—summer 2003—slightly more than one-half of the respondents were living within five miles of the plant. Readers who are interested in the sampling methods used during this research or a more detailed analysis of respondent demographics are welcome to contact the authors.

## I. Background

### A. In re Fernald Litigation

In 1951, DOE built a uranium processing plant in Fernald, Ohio, on 1,050 acres of land 18 miles northwest of Cincinnati. This facility, named the Feed Materials Production Center but referred to as the Fernald plant, operated from 1952 to 1989.<sup>4</sup> For decades the Fernald plant was an integral part of DOE's nuclear weapons production system, processing uranium ore into uranium metal products for use in DOE defense programs.<sup>5</sup> During production years, however, plant operations were kept secret and community members were not informed about what the plant produced or the risks the plant posed to them.<sup>6</sup> In fact, for years many residents assumed the "Feed Materials Production Center" produced animal feed.

The community's ignorance vanished in 1984 when DOE announced that 300 pounds of enriched uranium oxide had been released from a dust collector system and that three years earlier uranium had been detected in three off-property private wells.<sup>7</sup> Members of the community, enraged that DOE had not informed them about the contamination, began demanding that DOE close the plant and make public the extent of contamination.<sup>8</sup>

In January 1985, Fernald residents filed a class action lawsuit against DOE and National Lead of Ohio (NLO), the company that DOE had contracted to run the Fernald plant.<sup>9</sup> In 1989, the jury, in an advisory summary jury trial, delivered a verdict in favor of the plaintiffs—awarding them a total of \$136 million.<sup>10</sup> Consequently, DOE and the community agreed to a \$78 million settlement providing money for a medical monitoring program and compensation for emotional distress and property value diminution.

Pursuant to the settlement, the court and class members established the Fernald Settlement Fund, which is adminis-

tered by a court-appointed trustee.<sup>11</sup> To date, approximately 19,300 people are settlement class members who have received benefits from the Fernald Settlement Fund.<sup>12</sup> With the settlement funds designated for medical monitoring, the trustees established the FMMP. Plaintiff lawyers and members of the class believed medical monitoring to be an important step toward reducing community stress concerning the contamination.<sup>13</sup> They also hoped monitoring would lead to epidemiological findings concerning health problems in the area.<sup>14</sup> Since the program began 15 years ago, legal scholars have regularly cited it as a success.<sup>15</sup> Yet, this is the first research into how the people receiving medical monitoring services view the program.

### B. The FMMP

The FMMP serves people who lived or worked (full time) within five miles of the Fernald plant for a continuous two-year period between 1952 and 1984.<sup>16</sup> Enrollment in the FMMP remains open today. The program began offering medical examinations and diagnostic testing in September 1990 and is currently in its sixth examination cycle. As of October 2004, a total of 9,719 people (slightly over one-half of the settlement class members) had received at least one examination from the FMMP. Though DOE supplied the money for the FMMP,<sup>17</sup> no federal or state agency has a role in the administration of the program. While citizens, trustees, and the federal court oversee the program, the University of Cincinnati College of Medicine and Mercy Health Partners in Fairfield, Ohio, actually administer it.

4. In 1989, the Feed Materials Production Center site was added to the U.S. Environmental Protection Agency's national priority list. In 1991, production officially ended and the site was renamed the Fernald Environmental Management Project. SETH TULER, PERSPECTIVES ON PUBLIC PARTICIPATION IN PUBLIC HEALTH RISK ASSESSMENT OF RADIATION CONTAMINATION, CASE STUDY: THE FERNALD NUCLEAR WEAPONS FACILITY (OHIO) (Social and Environmental Research Institute 2003). The cleanup effort is ongoing.

5. MAKHIJANI ET AL., *supra* note 1.

6. Ronald A. Hardert, *Public Trust and Governmental Trustworthiness: Nuclear Deception at the Fernald, Ohio, Weapons Plant*, 5 RES. SOC. PROBS. & PUB. POL'Y 129-30 (1993); Fernald Closure Project, *The End of Secrecy*, at <http://www.fernaldd.gov/50th/secr.htm> (last visited Apr. 5, 2005).

7. Fernald Closure Project, *supra* note 6.

8. Ed Magnuson, *They Lied to Us: Unsafe, Aging U.S. Weapons Plants Are Stirring Fear and Disillusion*, TIME MAG., Oct. 31, 1988, at 60-65; Thomas Morganthau et al., *Nuclear Danger and Deceit*, NEWSWEEK MAG., Oct. 31, 1988, at 28-30; Barbara Burgower, *A Living Nightmare*, LADIES' HOME J., Mar. 1989, at 74.

9. There have now been three contractors at the Fernald plant site: NLO (1951-1986), Westinghouse (1986-1992), and Fluor Daniels (1992-present).

10. Summary of Order at 4, In re Fernald Litig., No. C-1-85-0149 (S.D. Ohio Sept. 29, 1989) (as cited in Amy S. Blumenburg, *Medical Monitoring Funds: The Periodic Payment of Future Medical Surveillance Expenses in Toxic Exposure Litigation*, 4 HASTINGS L.J. 661, 706-09 (1992)).

11. Three trustees originally administered the settlement fund. After creation of the fund, one died and was replaced. Subsequently, two trustees have died without replacement.

12. Of the 19,300 class members, 17,800 have received monetary payments and nearly 10,000 have participated in the FMMP. Personal Communication with Wayne Smith, Fernald Settlement Fund Administrator (Dec. 4, 2003).

13. Transcript of Fairness Hearing, In re Fernald Litig., No. C-1-85-0149 (S.D. Ohio Aug. 23, 1989); Interview with Paul DeMarco, Attorney, in Cincinnati, Ohio (July 31, 2003) [hereinafter DeMarco Interview]; Telephone Interview with Lisa Crawford, President, Fernald Residents for Environmental Safety and Health (Nov. 2003).

14. Transcript of Fairness Hearing, *supra* note 13; DeMarco Interview, *supra* note 13.

15. Blumenburg, *supra* note 10. Jesse R. Lee, *Medical Monitoring Damages: Issues Concerning the Administration of Medical Monitoring Programs*, 20 AM. J.L. & MED. 251, 261 (1994).

16. Employees of the plant are ineligible for the FMMP. In 1994, Fernald workers settled a separate lawsuit against NLO and DOE. DOE agreed to pay for lifetime medical monitoring and legal fees and \$15 million for emotional distress. Day v. National Lead of Ohio, Inc., 3 F.3d 153, 154 n.1 (6th Cir. 1993); LEE W. WILLIAMS JR., DETERMINING OUR ENVIRONMENTS: THE ROLE OF DEPARTMENT OF ENERGY CITIZEN ADVISORY BOARDS (Praeger 2002). The Fernald Workers Medical Monitoring Program was modeled after the FMMP.

17. As of October 31, 2003, the Fernald Settlement Fund Trustees had spent \$22 million from the settlement fund on the FMMP. In addition, the trustees paid out \$30 million for emotional distress compensation and \$7.8 million for residential property diminution compensation. Both of these programs have been completed. The cost of running the FMMP is roughly \$1.5 million annually. Telephone Interview with Wayne Smith, Fernald Settlement Fund Administrator (Dec. 8, 2003). FMMP officials estimate that funding will run out in 2008. FMMP, NEWS FROM THE FERNALD MEDICAL MONITORING PROGRAM (2005), available at [http://intmed.uc.edu/Divisions/General\\_medicine/FMMP/documents/Newsletter01-2005.pdf](http://intmed.uc.edu/Divisions/General_medicine/FMMP/documents/Newsletter01-2005.pdf) (last visited Apr. 27, 2005) [hereinafter FMMP, NEWS].

The program goals are:

- to provide a complete evaluation of the current health of eligible class members;
- to provide a comprehensive evaluation of risk factors for diseases that class members might develop in the future;
- to educate class members about how to modify their risk factors and thereby improve their health; and
- to establish a good baseline database of participant medical and lifestyle information that may be useful in subsequent epidemiological studies.<sup>18</sup>

The FMMP offers comprehensive screenings designed to detect a wide spectrum of health problems—not just problems potentially associated with the Fernald contamination.<sup>19</sup> And while the program monitors for health problems, it does not diagnose or treat them.<sup>20</sup> Originally the FMMP offered examinations every three years, but they have since increased examination offerings to every other year.<sup>21</sup> The FMMP is a voluntary program, allowing class members to take advantage of monitoring services to the extent they wish.<sup>22</sup>

The FMMP provides participants with copies of all the findings from exams and tests. After sending that report, the FMMP contacts participants to follow up on any significant findings and ensure that they have had further tests or been treated by their physician. The FMMP also offers to send the examination results to participants' personal physicians. If participants have no personal physician, the FMMP staff assists them in locating one. In addition to gathering information from medical examinations, the FMMP collects information from participants through detailed yearly questionnaires.

### C. Exposure, Risk, and Health at Fernald

Contamination from the Fernald plant was extensive and has increased community health risks. During production

years, the plant released over 100 tons of uranium dust into the air and over 70 tons into a nearby river.<sup>23</sup> In addition to these uranium releases, plant activities contaminated groundwater with a number of hazardous chemicals. Activities at the site also exposed community members to radon decay products.<sup>24</sup> The government conducted a series of risk assessments in the 1990s that concluded that this contamination increased community health risks for lung cancer, leukemia, kidney cancer, female breast cancer, and bone cancer.<sup>25</sup> Additionally, a recent Agency for Toxic Substances and Disease Registry (ATSDR)<sup>26</sup> public health assessment found that area residents' past exposure to uranium in water from wells south of the site or their inhalation of radon and radon decay products poses a public health hazard.<sup>27</sup>

While documenting increased health risks is important, studies that address real health problems and potential effects are what community members want and need, as evidenced by the authors' interviews. Using FMMP data, researchers have begun working on studies to answer many of the community's questions. FMMP studies show disturbing trends in increased incidence of both cancerous and noncancerous health problems. In 1999, using four years of data, FMMP researchers compared cancer incidence among FMMP participants with national and local cancer databases.<sup>28</sup> Results showed higher rates of urinary, melanoma, and prostate cancers among FMMP participants.<sup>29</sup> Researchers repeated the cancer incidence analysis with seven

18. FMMP, *Overview of FMMP*, at [http://genmed.uc.edu/FMMP/global\\_tpl.cfm?SecId=Overview&SubId=Overview](http://genmed.uc.edu/FMMP/global_tpl.cfm?SecId=Overview&SubId=Overview) (last visited Apr. 27, 2005).

19. For all participants, FMMP examinations include a general physical examination, blood test, vision and hearing test, pneumonia vaccine (as needed), and diphtheria/tetanus vaccine (as needed). Adults over 40 are offered a chest X ray and electrocardiogram (smokers younger than 40 are also offered a chest X ray). Adults over 45 are offered rectal examinations, urine tests, and tests for blood in the stool. Laboratory tests include complete blood count, renal profile, liver function tests, lipid profile, thyroid function test, stool testing for blood, and urine tests (urinalysis, urine beta2 microglobulin, urine protein, urine creatinine, and urine albumin). In addition, blood and urine samples are frozen for storage. Men 50 and over are offered a Prostate Specific Antigen to screen for prostate cancer. Women 40 and over are offered a yearly mammogram. Women are also offered a pap smear and pelvic examination. When the program began, participants were all given a pulmonary function test; now this test is performed only when the physician deems it appropriate. In addition to performing examinations and tests, the FMMP collects each participant's medical history.

20. To receive treatment, participants must rely on their personal physicians.

21. The FMMP began offering examinations more frequently because fiscal analyses indicated that there were sufficient funds to do so and because the FMMP population was aging. Personal Communication with Jenny Buckholz, FMMP Program Manager (Dec. 8, 2003); Personal Communication with Dr. Susan M. Pinney, Associate Professor of Environmental Health, University of Cincinnati (Apr. 26, 2005).

22. The only demand made of participants is that they receive a physical examination upon entry into the program. After that examination, participants choose their level of participation.

23. OFFICE OF ENVIRONMENTAL MANAGEMENT, U.S. DOE, *CLOSING THE CIRCLE ON THE SPLITTING OF THE ATOM 72* (DOE/EM-0266) (1996).

24. *Id.*; 1 GEORGE G. KILLOUGH ET AL., *RADIATION ASSESSMENT CORPORATION, THE FERNALD DOSIMETRY RECONSTRUCTION PROJECT: TASK 6: RADIATION DOSES AND RISK TO RESIDENTS FROM FMPC OPERATIONS FROM 1951-1988* (Report No. 1-CDC-Fernald-1998-Final, 1998).

25. NATIONAL CENTER FOR ENVIRONMENTAL HEALTH, CDC, *A SUMMARY OF THE FERNALD RISK ASSESSMENT REPORT, ESTIMATION OF THE IMPACT OF THE FORMER FEED MATERIALS PRODUCTION CENTER (FMPC) ON LUNG CANCER MORTALITY IN THE SURROUNDING COMMUNITY* (1998), available at <http://www.cdc.gov/nceh/radiation/ferald/summary.pdf> (last visited Apr. 27, 2005); CDC, *A SUMMARY OF THE DRAFT PHASE II FERNALD RISK ASSESSMENT REPORT, SCREENING LEVEL ESTIMATES OF THE LIFETIME RISK OF DEVELOPING KIDNEY CANCER, FEMALE BREAST CANCER, BONE CANCER, AND LEUKEMIA AS A RESULT OF THE MAXIMUM ESTIMATED EXPOSURE TO RADIOACTIVE MATERIALS RELEASED FROM THE FORMER FEED MATERIALS PRODUCTION CENTER (FMPC)* (1999), available at <http://www.cdc.gov/nceh/radiation/phase2/results.pdf> (last visited Apr. 27, 2005).

26. Congress created the ATSDR under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980 to perform health-related sections of laws that protect the public from hazardous substances. See ATSDR, *ATSDR Background and Congressional Mandates*, at <http://www.atsdr.cdc.gov/congress.html> (last visited Apr. 27, 2005).

27. ATSDR, *PUBLIC HEALTH ASSESSMENT, FEED MATERIALS PRODUCTION CENTER (U.S. DOE) [A.K.A. FERNALD ENVIRONMENTAL MANAGEMENT PROJECT] HAMILTON AND BUTLER COUNTIES, OHIO HEALTH OUTCOME DATA*, available at [http://www.atsdr.cdc.gov/HAC/PHA/fer/fer\\_p4.html](http://www.atsdr.cdc.gov/HAC/PHA/fer/fer_p4.html) (last visited Apr. 27, 2005).

28. Researchers only counted new cases of cancer diagnosed after people joined the FMMP.

29. FMMP, *Cancer Incidence in Fernald Area Residents*, NEWSL., June 1999, at 1 (on file with authors) [hereinafter FMMP, *Cancer*]; Tim Bonfield, *Fernald Health Concerns Increase: Study Finds More Cancer Than Norm*, CIN. ENQUIRER, June 24, 1999.

years of FMMP data. The results were “very similar” as researchers “continue[d] to find statistically significant elevations of kidney and prostate cancer, and malignant melanoma.”<sup>30</sup> Another FMMP study recently documented increased incidence of some noncancerous health problems, including bladder and kidney disease.<sup>31</sup> This study found that “prior living within the Fernald exposure domain is related to increased prevalence of urinary system disease.”<sup>32</sup>

For many community members, these trends validate the concerns they have been expressing since learning about the contamination. While these studies have not established a causal link between exposures from Fernald and negative health effects, they prove the need for continued research and medical monitoring at Fernald and other weapons sites.

#### *D. U.S. Government Ignores Medical Monitoring Needs Near Nuclear Weapons Production Sites*

Despite two federal legislative acts that compensate people (almost exclusively employees) who were harmed by nuclear weapons testing, uranium mining, and weapons assembly, the federal government has not addressed the concerns of the people who lived and worked near the nuclear weapons plants. The Radiation Exposure Compensation Act (RECA) of 1990 provides \$50,000 to uranium miners, mill workers, ore transporters, and so-called downwinders who have developed medical problems due to radiation exposure during the mining process or from nearby weapons testing.<sup>33</sup> The Energy Employee Occupational Illness Compensation Exposure Act (EEOICEA) of 2000 provides \$150,000 to workers from many nuclear weapons production facilities who have developed certain diseases due to their occupational exposure.<sup>34</sup> In most cases these programs only provide money to people whose ailments are more likely than not caused by radiation from nuclear weapons production. In addition to these pieces of legislation, in 1993 Congress provided funds for medical monitoring programs for DOE employees who face health risks from exposure to

hazardous or radioactive substances at DOE facilities.<sup>35</sup> Though Congress has provided monetary and medical monitoring benefits to DOE employees, it has largely ignored the contaminated communities beyond each plant’s gates.

While the ATSDR has authority to carry out community medical monitoring programs under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the ATSDR has created no long-term monitoring programs for communities near nuclear weapons production sites.<sup>36</sup> In 1998, the ATSDR attempted to implement such a program for the community near DOE’s Hanford site in Washington State.<sup>37</sup> Despite extensive planning, the program never came to fruition because DOE was unwilling to provide funding, and a citizen suit under CERCLA to force DOE to fund the program was unsuccessful.<sup>38</sup> In fact, courts in general have been reluctant to grant claims for community medical monitoring under CERCLA.<sup>39</sup>

Furthermore, government efforts to assess the health of these communities have been poorly implemented. In 1991, the Office of Technology Assessment found that health assessments at DOE nuclear weapons sites were haphazard and that no single agency had the resources or authority to coordinate oversight over the process.<sup>40</sup> Similarly, a 1997 report by the Energy Research Institute concluded that improving government policy with regards to the health of contaminated communities “will require . . . connect[ing] government’s moral and ethical responsibilities to the needs of its citizens.”<sup>41</sup> Ultimately, with DOE unwilling to

30. ROBERT WONES & SUSAN M. PINNEY, A SECOND REPORT OF CANCER INCIDENCE IN PARTICIPANTS OF THE FERNALD MEDICAL MONITORING PROGRAM (2002), available at <http://genmed.uc.edu/FMMP/Documents/CAINC2002.pdf> (last visited Apr. 27, 2005).

31. Susan M. Pinney et al., *Health Effects in Community Residents Near a Uranium Processing Plant at Fernald, Ohio, USA*, 16 INT’L J. OCCUPATIONAL & ENVTL. HEALTH 139 (2003).

32. *Id.* Ongoing FMMP research projects include tracking health changes over time and examining the relationship between exposure to Fernald contaminants and health effects among FMMP participants. See FMMP, *Research*, at [http://genmed.uc.edu/FMMP/global\\_tpl.cfm?SecId=Research&SubId=Research](http://genmed.uc.edu/FMMP/global_tpl.cfm?SecId=Research&SubId=Research) (last visited Apr. 27, 2005).

33. The downwinders are the only nonemployee class that has received benefits from the government due to radiation exposure from nuclear weapons production and testing. However, RECA limits downwinder benefits to people who lived and worked in a very limited number of counties in Arizona, Nevada, and Utah, leaving out communities located near the vast majority of nuclear weapons production sites. See Radiation Exposure Compensation Program, *About the Program*, at <http://www.usdoj.gov/civil/torts/const/reca/about.htm> (last modified June 7, 2004).

34. Claims for Compensation Under the Energy Employees Occupational Illness Compensation Program Act of 2000, as Amended, 67 Fed. Reg. 78874 (Dec. 26, 2002), codified at 20 C.F.R. §§1, 30, available at <http://www.dol.gov/esa/regs/fedreg/final/2002031841.pdf> (last visited Apr. 27, 2005).

35. National Defense Authorization Act of 1993, Pub. L. No. 102-484, §3162, 106 Stat. 2315 (1992).

36. 42 U.S.C. §9604; Carmen E. Sessions, *Medical Monitoring Awards Under CERCLA: Statutory Interpretation Versus Fundamental Fairness*, 8 S.C. ENVTL. L.J. 81 (1999).

37. Press Release, CDC, Announcement of ATSDR’s Decision on Medical Monitoring for Hanford (Mar. 1997), available at <http://www.cdc.gov/od/oc/media/pressrel/radiat1.htm> (last visited Apr. 27, 2005).

38. *Id.*; Pritikin v. Department of Energy, 254 F.3d 791, 31 ELR 20708 (9th Cir. 2001).

39. Sessions, *supra* note 36. Several legal scholars have urged courts to recognize claims for community medical monitoring as an alternative to more traditional toxic tort claims. Blumenburg, *supra* note 10; Lee, *supra* note 15. However, the law regarding medical monitoring claims is unsettled, with no consensus among courts regarding the legitimacy of granting medical monitoring claims. James M. Garner et al., *Medical Monitoring: The Evolution of a Cause of Action*, 30 ELR 10024 (Jan. 2000). The courts’ reluctance has prompted calls for legislative solutions such as amending CERCLA to provide medical monitoring services as a fully covered response cost. Sessions, *supra* note 36, at 100.

40. OTA, *supra* note 1. While the CDC is researching health effects from radiation exposures at the Fernald plant, Hanford site, Idaho National Engineering and Environmental Laboratory, Los Alamos National Laboratory, and Savannah River site, none of those studies involve medical monitoring programs. See *Radiation Studies*, *supra* note 1. In fact, the CDC recently cancelled a study analyzing whether radioactive fallout from weapons testing has had thyroid effects among downwinders in southern Utah and Nevada. CDC officials cited a lack of funds to continue the research. However, study researchers and participants expressed skepticism that funding was the issue, instead charging the government with trying to avoid learning about health effects from radiation. Preliminary data from the study indicated excess thyroid tumors and other problematic disease trends in the population that the study’s lead researcher thinks deserve attention. Joe Bauman, *CDC Kills Fallout Study*, DESERET NEWS, Mar. 29, 2005, available at <http://deseretnews.com/dn/view/0,1249,600122011,00.html> (last visited Apr. 27, 2005).

41. TIM CONNOR, BURDENS OF PROOF: SCIENCE AND PUBLIC ACCOUNTABILITY IN THE FIELD OF ENVIRONMENTAL EPIDEMIOLOGY,

fund community medical monitoring programs voluntarily, the ATSDR and private citizens unable to force DOE to pay for them under CERCLA, and no other agency able or willing to provide similar services, the government is failing these communities. Federal legislation to provide medical monitoring programs like the one at Fernald is needed to provide relief.

## II. Learning From Fernald Settlement Class Members

The Fernald experience shows that medical monitoring programs can confer great benefits on communities dealing with radioactive and toxic contamination and that those benefits should be extended to other communities located near nuclear weapons production sites. However, before outlining these myriad benefits, the community's continued anger deserves note. Despite the various forms of compensation provided by the settlement and the ongoing efforts to clean up the Fernald site, many members of the Fernald community remain upset. As one woman stated: "There's nothing they could give any of us that could compensate for what they've done to us. *Nothing*."<sup>42</sup> Further, some respondents criticized the program for failing to treat health problems. The salience of some community members' continued distress serves as a reminder that even good-faith public policy attempts to redress the problems government nuclear weapons production caused may not dramatically improve community members' perception of DOE or government in general.

Nevertheless, respondents view the FMMP as a legitimate response to their situation and recommend that the government offer similar programs to other communities that face their predicament. Respondents primarily value the health benefits they receive from the program—especially since many remain concerned that the Fernald contamination continues to pose a health threat. In addition to benefitting participants' health, the program helps class members cope with the psychological effects of increased health risks—though at times medical monitoring can actually increase their perception of risk. While the FMMP has many strengths, it and future programs like it could be improved. The FMMP needs to disseminate more effectively findings from epidemiological health studies.

### *A. Medical Monitoring: A Legitimate Response to Contamination*

Fernald class members who were interviewed generally agreed that long-term medical monitoring is an appropriate and positive response to the situation faced by their community. When asked to rank the importance of the settlement components, 62% (21) of respondents ranked medical mon-

itoring as the most important, while 94% ranked medical monitoring among the top two.<sup>43</sup> Further, 86% (30) of respondents thought that the FMMP was a good use of settlement money, and 82% (28) stated they would rather have money used for medical monitoring than paid out to the class.<sup>44</sup> As one man said:

What good's the money? You give it to them—it's gone. The monitoring, they do this every couple years and . . . if there's something wrong [and] you find it early enough, you can be cured. . . . I think the money should go for that monitoring. I think more people would be benefitted by that than they would be [by cash payments].<sup>45</sup>

43. Respondents were asked to rank the importance of the settlement parts to them. In addition to emotional distress compensation, property damage compensation, and medical monitoring, "DOE and NLO taking responsibility for polluting" was included as a settlement component. After medical monitoring, respondents ranked DOE and NLO taking responsibility second most important, property damage compensation third, and emotional distress compensation fourth. Thirty-one percent (11) of respondents had received property damage compensation and 43% (15) had received emotional distress compensation.

44. In 2000, members of the class were asked by their counsel how they wanted the Fernald trustees to spend the remaining \$20 million in the Fernald Settlement Fund. The letter sent to the class noted that the trustees had recommended that \$15 million go toward the FMMP and \$5 million be dispersed to members of the class who had previously been awarded emotional distress claims. Since the trustees had already recommended that medical monitoring continue, class members in favor of medical monitoring had little reason to write a letter. Hence, a more critical perspective on the FMMP predominated in the letters received. Of the 83 letters the authors randomly sampled (20% of the total number of letters written) to review for this Article, 49% recommended that more than \$5 million be distributed to the class. Letters criticizing the FMMP largely addressed two problems. First, that the program does not treat problems and therefore fails to provide an individual health benefit. One letter noted:

All they do is tell you what's wrong, they don't treat you for anything. I have health problems that should be taken care of. But with no health insurance and no money I have to let my health go.

While this complaint is understandable, treatment would entail a major shift in the program's goals. Given limited resources, providing treatment services would shorten the program's existence—compromising the program's goal to collect data longitudinally for use in epidemiological studies. With significantly more funding (which is needed even if only to lengthen the FMMP's existence), defending the program's decision to not treat participants' illnesses would be difficult. However, making the decision to treat would not be simple. Several other controversial decisions would have to be made subsequent to the decision to treat. Would the program treat all illnesses, including mental illnesses and physical illnesses likely unrelated to the exposure? How would the program decide whether an illness is related to the exposure? Would the program treat all program participants or only those who lack access to health care? These questions could become the source of considerable conflict within the community.

The second complaint leveled in the letters was that the program has not and will not provide valuable epidemiological findings:

What can the program do for me that my own physician and medical insurance can't provide? As far as I can see, the only reason for the monitoring program is statistics, i.e., how many people who lived "x" miles from Fernald have this medical problem. Show me how that is a help to us and maybe I'll change my mind.

While not all members of contaminated communities find epidemiological studies important, this second complaint could largely be addressed through improved communication. If community members were thoroughly informed about research activities and outcomes, the value of their participation (even if their personal health is not benefitting) would be more apparent.

45. Fernald Settlement Class Interviews, *supra* note 42.

WITH A FOCUS ON LOW-DOSE RADIATION AND COMMUNITY HEALTH STUDIES 56 (Energy Research Foundation 1997).

42. Interviews with Fernald Settlement Class Members (Summer 2003) (on file with authors) [hereinafter Fernald Settlement Class Interviews]. This sentiment is also clearly documented by the Fernald Living History Project (FLHP). The FLHP interviews retired workers and community members from the Fernald area in an "effort to record and preserve the various perspectives that are a part of the community's environmental history." See Fernald Living History Project, at <http://offo2.epa.state.oh.us/FLHP.htm> (last visited Apr. 27, 2005). To view selected transcripts from the FLHP, see Fernald Closure Project, *The Voices of Fernald, 1951-2001*, at <http://www.fernaldd.gov/50th/vf.htm> (last visited Apr. 27, 2005).

Even three of the four respondents who had never taken part in the FMMP thought the program was a good use of money.

The legitimacy of the medical monitoring program as a form of relief stood in contrast to the illegitimacy of the emotional distress compensation program that was also part of the Fernald settlement. Though not prompted, many respondents complained that emotional distress compensation was “not fair” and “a joke.” Respondents who received emotional distress compensation and those who did not both expressed this sentiment. Whereas medical monitoring offers equal benefits to the whole community, emotional distress compensation benefitted some more than others—and in a manner that many perceived as unfair. In this way, legislation that would provide medical monitoring to communities contaminated by DOE nuclear weapons production activities would provide greater benefits and be better received than cash payment programs like those established under RECA and the EEOICEA.

### 1. The FMMP Addresses Participants’ Persistent Health Concerns and Improves Their Health

Though the Fernald community learned about the contamination more than 20 years ago, respondents remain fearful that past exposures continue to have negative health effects. During interviews, residents cited fear of cancer most widely, but also frequently raised concerns about genetic effects, respiratory ailments, and female reproductive problems. Respondents valued the long-term nature of the program because it complements the long latency period of problems caused by exposure to radioactive and toxic materials.

While these specific health concerns were a driving force behind the establishment of the FMMP, community members and program officials alike wanted the program’s primary benefit to be improving the overall health of the community through comprehensive screening. Participants benefit because the program comprehensively monitors their health, and researchers benefit because they are able to notice community health patterns that would not have been apparent had the program only monitored diseases previously linked to similar exposures. Using FMMP data, researchers have found high rates of renal problems like chronic nephritis, kidney stones, and kidney cancer—problems that might be linked to the chemical toxicity of uranium—that were not addressed in early health risk estimates.<sup>46</sup> Further, due to FMMP efforts to educate Fernald-area physicians about these trends, area physicians are now paying closer attention to renal problems.<sup>47</sup>

During each exam cycle, the FMMP has identified major and minor health problems and risk factors (like smoking and high cholesterol) among 42% to 64% of participants.<sup>48</sup> As one man stated:

[The FMMP] keeps you cognizant of the things that you need to know as you age. What is your PSA number? What’s your cholesterol number? When was the last time you had a chest x-ray?<sup>49</sup>

Giving participants this information has made an impact—FMMP researchers recently found that average cholesterol levels and blood pressure levels dropped among participants who returned for the second and third examinations.<sup>50</sup> Further, the FMMP regularly finds health problems as diverse as diabetes, skin cancer, breast cancer, and thyroid problems among participants.<sup>51</sup> About 1 in 11 FMMP participants has been alerted to a major medical problem due to FMMP program examinations and diagnostic testing.<sup>52</sup> Further, the FMMP is responsible for finding 207 of the 364 (57%) new cancer cases among participants since the program began.<sup>53</sup>

During interviews, 37% (13) of respondents said the FMMP had discovered a previously unknown problem with their health and nearly all respondents knew someone who had a new problem detected by the FMMP. One woman movingly recalled how she had been at her FMMP exam when the doctor noticed she was having a heart attack, which, she said, “probably sav[ed] my life.”<sup>54</sup> Similarly, a man who had prostate cancer discovered by the program stated:

I wouldn’t have gone to the doctor for prostate problems had it not been for [the FMMP]. . . . I’m the worst in the world about going to a doctor. . . . I just thought I was always well. And the PSA, I’d never heard of that. They say you should have it. It happens to everyone else, it don’t happen to me.<sup>55</sup>

In this way, offering free, regular exams to members of the Fernald class has improved participants’ health.

### 2. The FMMP Has Helped Class Members Cope With Being Exposed to Harmful Substances

While the FMMP is primarily focused on improving participants’ health, it was also established to help class members cope with emotional distress caused by the Fernald contamination. This aspect of the program is important because uncertainty concerning health effects from exposure can cause considerable distress among members of contaminated communities.<sup>56</sup> After exposure to toxic or radioactive substances, a paucity of information about the health effects of contaminants can lead to the formation of “nonempirical belief systems” that increase individuals’ perceptions of risk, including psychological problems like hypervigilance and

46. Interview with Dr. Susan M. Pinney, Associate Professor of Environmental Health, University of Cincinnati, in Cincinnati, Ohio (Aug. 1, 2003) [hereinafter Pinney Interview]; SUSAN M. PINNEY ET AL., PRESENCE OF ADVERSE HEALTH OUTCOMES IN RESIDENTS OF THE AREA SURROUNDING THE FORMER FEED MATERIALS PROCESSING CENTER AT FERNALD, OHIO (ATSDR Final Report of Contract No. 205-98-0014, 2001).

47. Pinney Interview, *supra* note 46.

48. ROBERT WONES, FERNALD MEDICAL MONITORING PROGRAM YEAR 13 SECOND QUARTER REPORT TO FERNALD SETTLEMENT FUND TRUSTEES (2003) (on file with authors).

49. Fernald Settlement Class Interviews, *supra* note 42.

50. FMMP, NEWS, *supra* note 17.

51. WONES, *supra* note 48.

52. Major medical problems include problems like diabetes, thyroid disease, and aortic aneurysm. Robert Wones et al., Fernald Medical Monitoring Program: Design and Objectives (unpublished draft manuscript, received Mar. 3, 2005) (on file with authors).

53. *Id.*

54. Fernald Settlement Class Interviews, *supra* note 42.

55. *Id.*

56. MICHAEL R. EDELSTEIN, CONTAMINATED COMMUNITIES: THE SOCIAL AND PSYCHOLOGICAL IMPACTS OF RESIDENTIAL TOXIC EXPOSURE (Westview Press 1988); HENRY M. VYNER, INVISIBLE TRAUMA: THE PSYCHOLOGICAL EFFECTS OF INVISIBLE ENVIRONMENTAL CONTAMINANTS (Lexington Books 1988).

traumatic neuroses.<sup>57</sup> Exposed individuals sometimes reorient their worldviews, constantly fixating on the danger posed by past exposure.<sup>58</sup> To successfully adapt to the psychological stress associated with contamination, individuals need empirical information that allows them to form opinions about the true nature of the threat.

By providing accurate health information to class members, the FMMP provides empirical information that can help people cope with their fear of sickness in a rational way.<sup>59</sup> In providing this information, the FMMP has had contradictory effects on class members' perception of health risk. While the program gives participants peace of mind, ensuring them of their good health, it also increases some participants' perception of risk by periodically reminding them that they are at risk. Any contaminated community includes those who are more concerned about health effects and those who are less concerned—medical monitoring allows exposed individuals to engage with their health objectively, mitigating irrational fears and promoting increased vigilance when necessary.

The Fernald experience suggests that medical monitoring in the short term may cause a spike in perception of risk, but in the long term provides reassurance and “peace of mind.” Since the program's inception, the FMMP has had participants complete a Short-Form 36 (SF-36) health questionnaire yearly.<sup>60</sup> This widely used questionnaire measures people's perception of their own health. Currently, FMMP researchers have tabulated scores for only the first two years of the program. Previously unpublished, the results of this analysis show that for every functional scale, participants' perceived health status declined after their first FMMP exam.<sup>61</sup> One FMMP official hypothesized that the act of offering exams initially increased worry among class members by making the threat posed by the contamination more concrete and harder to ignore.<sup>62</sup>

Though SF-36 data has not been analyzed since year two, the bulk of the respondents credited FMMP exams as being psychologically reassuring:

It's nice to know somebody's monitoring what has happened to me.

It's helped me . . . to be relieved that I don't have cancer. . . . Nothing's going on with me.

[The FMMP gives me] a certain amount of peace of mind that . . . I am in generally good health and that if there were anything lurking around . . . I would get . . . an early warning.<sup>63</sup>

Further, of the 18 respondents who were either worried or somewhat concerned about their health due to living near Fernald, 11 credited the FMMP with improving their sense

of health and well-being while 6 reported no change. Only one respondent reported a decrease in their sense of health and well-being due to the FMMP.

In sum, the FMMP provides a valuable psychological service in providing accurate, thorough health information to a class of at-risk people. This information helps participants respond rationally to the risks the Fernald contamination poses to them.

Though the FMMP has provided substantial benefits to individuals in the Fernald community, so far it has failed to address residents' concerns about the state of the community's health and the contamination's effects at the community level.

### 3. Coping With the Community Health Implications of the Fernald Contamination

The FMMP has done a better job of communicating individual health information to participants than of communicating community health information. Sixty-four percent (22) of respondents were not satisfied with FMMP efforts to communicate epidemiological information to them. While many had not heard the results of FMMP studies, they expressed considerable interest in receiving updates. This provides further evidence of the participants' broad-based notion of community health responsibility. The FMMP and future medical monitoring programs must learn from this failure.

Indeed, presenting the findings of sophisticated community health studies to a working class community is more difficult than performing the primary task of reporting the results of individual examinations and tests. In 1999, the FMMP sent out a newsletter with the results of their first study on cancer incidence.<sup>64</sup> Unfortunately, only 26% (nine) of respondents remembered hearing about those findings and only two remembered what the findings documented. Still, members of the Fernald community desire a clear understanding of how decades of radioactive and toxic contamination have affected their network of friends, neighbors, and relatives. Without this information, individuals have no broader context within which to situate their own experience. As a result, they can only partially adapt to their exposure.

Fortunately, this situation can, and must, be remedied. Regularly providing community health information to the Fernald community will be tremendously useful to all—even those who never took part in the FMMP. One respondent explained how she found the results of health studies helpful because: “I feel like I'm getting information about my health or about something that could affect my life.”<sup>65</sup>

#### B. FMMP: Lessons Learned

Policymakers have a unique opportunity to learn from both the successes and failures of the FMMP. Above the authors have detailed how those served by the program: (1) view it as an appropriate response to having been exposed to harmful substances; (2) receive health benefits from continued participation; (3) are better able to adapt to being exposed

57. VYNER, *supra* note 56.

58. *Id.* at 118-19.

59. DeMarco Interview, *supra* note 13.

60. The program recently switched to using the shorter SF-12 Form.

61. Perception of health dropped for both men and women and across all age groups. Susan M. Pinney et al., Fernald Medical Monitoring Program SF-36 Data Analysis (1997) (unpublished manuscript) (on file with authors).

62. Interview with Dr. Robert Wones, FMMP Project Director, in Cincinnati, Ohio (Aug. 7, 2003).

63. Fernald Settlement Class Interviews, *supra* note 42 (separate interviews).

64. FMMP, *Cancer*, *supra* note 29.

65. Fernald Settlement Class Interviews, *supra* note 42.

due to the information they receive; and (4) would benefit from improved community health information. The FMMP has been largely successful and could easily become a model for a broader effort to monitor the health of communities throughout the nuclear weapons production complex.

### III. The Need for Community Medical Monitoring at Other Nuclear Weapons Sites: A Question of Fairness

The Atomic Energy Act of 1954 explicitly required the federal government to protect health and minimize danger to life or property with respect to activities authorized by the Act.<sup>66</sup> Unfortunately, DOE failed to fulfill that responsibility, and, therefore, as DOE itself found in 1999, “the need to address environmental, safety, and health issues [at nuclear weapons production sites] will remain as we enter a new millennium.”<sup>67</sup> While cleaning up the environment and ensuring the safety of future populations near DOE facilities have been the center of much attention lately, the needs of contaminated communities have been overlooked.

In a seminal work on the effects of environmental exposures, Henry Vynner pointed out that “the basic thrust of public policy should always be to assist the exposed population in the tasks of adapting to the threats posed by that exposure.”<sup>68</sup> By providing regular, accurate health information to exposed individuals, long-term medical monitoring is the policy option best suited to meet this challenge. Indeed, 34 of the 35 Fernald class members interviewed recommended that communities facing similar situations establish long-term medical monitoring programs, often noting that the government should do it of its own accord.

As scholars have noted, the question of whether or not to provide medical monitoring to those affected by U.S. nuclear weapons production activities is primarily political—some view policy options as a dichotomous choice between dose reconstruction research and medical monitoring.<sup>69</sup> In fact, communities and researchers need both dose reconstruction and medical monitoring. However, rather than help individuals improve their health and adapt to being exposed through monitoring services, government agencies have directed their efforts solely toward dose reconstructions and health risk estimates.<sup>70</sup> Communities contaminated by nuclear weapons production activities need government policy to benefit them directly through medical monitoring programs. Furthermore, researchers need long-term medical monitoring data to explore a causal link between exposure and health effects. Community medical monitoring data used in conjunction with dose reconstructions will allow researchers to better understand whether exposures have caused health problems. The medical monitoring Congress provided for nuclear weapons plant employees has proven successful in this way. Researchers have used workers’ medical monitoring data to characterize the “health hazards faced at DOE sites more specifically and

completely than ever before.”<sup>71</sup> Similar legislation is needed to establish long-term community medical monitoring programs that will provide direct health and psychological benefits to community members and allow researchers to amass the data that could lead to more conclusive answers regarding health effects.

By amending RECA to provide long-term medical monitoring services to people who lived in areas that were contaminated by U.S. nuclear weapons production, Congress will take a proactive step toward reconciling the harm done to those communities. The existence of RECA and the EEOICEA is evidence of broad-based public support for compensating those who have been harmed by the nation’s nuclear weapons production activities. Further, by compensating downwinders, RECA sets a legislative precedent for providing relief to residents of communities that were exposed to radioactive and toxic substances. The public has supported Congress’ decision to provide medical monitoring programs for nuclear weapons production workers; researchers and participants have called for expansion of the program to include all workers.<sup>72</sup>

Like Fernald, many of the communities near DOE nuclear weapons production sites have lost considerable trust in DOE and in the federal government in general. At Fernald, community support for the FMMP hinged on the absence of government influence in program administration or data analysis and on the community playing a substantive role in determining the direction of monitoring activities and research.<sup>73</sup> Therefore, model legislation to establish long-term medical monitoring programs would mimic the Fernald settlement by dispersing medical monitoring funds to independent medical and research institutions that are overseen by community residents and independent administrators. This model would be successful because it meets the minimum criteria of: (1) providing meaningful opportunities for community members to participate in the decision-making process; and (2) specifically excluding DOE from any administrative role. Unless Congress passes legislation to provide these services, the government will fail to redress adequately the harms its nuclear weapons production activities caused to communities across the United States.

### IV. Conclusion

The federal government’s responsibilities, like DOE’s toxic and radioactive effluents, do not stop at each plant’s fence line. U.S. production of nuclear weapons has put many communities at risk. These communities believed that hosting DOE nuclear weapons facilities meant helping protect their country—not polluting their environment and increasing their health risks. Over the past 15 years, the FMMP has provided substantial benefits to the Fernald community by improving health, helping participants mentally adapt to their exposure, sensitizing physicians to certain health conditions, facilitating participants’ notion of a broad community health responsibility, and gathering data that yield

66. 42 U.S.C. §§2011-2013.

67. U.S. DOE, FROM CLEANUP TO STEWARDSHIP, *supra* note 1, at viii.

68. VYNER, *supra* note 56, at 191.

69. MAKHIJANI ET AL., *supra* note 1, at 283.

70. Although the government has focused on these activities, gaps and inaccuracies in DOE dose records have impeded epidemiologists’ efforts to formulate accurate dose reconstructions and health risk estimates at several DOE sites. *Id.*

71. TIM K. TAKARO ET AL., FORMER WORKERS HEALTH SCREENING PROGRAM, A PROGRESS REPORT: FIVE YEARS OF INNOVATION AND SUCCESS (2001), available at [http://www.cdc.gov/niosh/sbw/osh\\_prof/takaro2.html](http://www.cdc.gov/niosh/sbw/osh_prof/takaro2.html) (last visited Apr. 27, 2005).

72. *Id.*

73. In addition to the federal court and trustees, the FMMP is overseen by a group of community advisors.



valuable epidemiological findings. Other communities throughout the DOE nuclear weapons complex face similar situations, and the benefits of long-term medical monitoring programs should be extended to them. Such a policy will

provide far-reaching benefits, as the resulting information would advance the related global goals to understand how toxic and radioactive contaminants affect people's health and to protect communities from those effects.