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NUCLEAR WASTE: THE MOST COMPELLING ENVIRONMENTAL ISSUE FACING THE WORLD TODAY

*Congresswoman Patsy T. Mink**

The most compelling environmental issue facing the world on the brink of the twenty-first century is the disposal of nuclear waste. The incredibly long life and environmental hazards of nuclear waste have made its satisfactory disposal seemingly impossible. The economic cost of proper and safe disposal, as well as the "Not in my back yard" reaction of the public,[1] has stood in the way of such projects as the proposed waste disposal site at Yucca Mountain in Nevada.[2]

Nuclear waste is not limited to the plutonium and uranium left over from unused nuclear weapons. Nuclear waste is generated at several steps of the nuclear weapon production process.[3] In fact, the acid used to extract the plutonium for the very first nuclear test explosion in the Alamogordo desert of New Mexico is now high-level waste stored at the Hanford site in the State of Washington.[4] Each container used for shipment, every glove, shoe, and disposable coverall used with the handling and cleanup of nuclear waste, is classified as nuclear waste.[5] Waste is classified into several

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1. *Bipartisan Turnout for Rally Opposing Nuke Dump*, THE ASSOCIATED PRESS POLITICAL SERVICE, Aug. 8, 1996, *available in* 1996 WL 5398682.

2. *Select Interim Nuclear Dump*, PORTLAND OREGONIAN, Sept. 28, 1995, *available in* 1995 WL 9193944.

3. *Long Term Environmental Effects of Nuclear Weapons Underestimated*, NUCLEAR WASTE NEWS, July 29, 1995, *available in* 1995 WL 2410007.

4. *See generally* Gerald F. Hess, *Hanford: Cleaning Up the Most Contaminated Place in the United States*, 38 ARIZ. L. REV. 165 (1996) (discussing the history and physical environment of the Hanford Site).

5. *What is nuclear waste?* (visited Nov. 30, 1996) <http://www. history.rochester.edu/class/hanford/cdcPaper/bib.html> [hereinafter *Nuclear waste site*].

different categories, based on the potential hazards that the material presents to living organisms and the length of time that it will remain hazardous.[6] Waste is categorized as follows:

Spent Fuel

Spent fuel consists of the highly radioactive material found in the core of a nuclear reactor following irradiation but before constituent elements are separated by reprocessing. The Department of Energy ("DOE") does not consider its spent fuel to be waste.[7]

High-Level Waste

High-level waste is waste generated during the reprocessing of spent fuel rods.[8] The production of plutonium is the primary source of high-level waste. High-level waste is highly radioactive, and contains hazardous chemicals and toxic heavy metals. The waste is hazardous for thousands of years and must be kept in storage facilities.[9]

Transuranic Waste

Transuranic waste, made up of the transuranic elements, is generated during the production of nuclear weapons.[10] A transuranic element is an element with a greater atomic number than uranium.[11] Some transuranic elements, such as plutonium, have half-lives of thousands of years. Transuranic waste has been stored in drums on site.[12]

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6. *Id.*

7. *Nuclear waste site*, *supra* note 5; *see* Charles H. Montange, *Federal Nuclear Waste Disposal*, 27 NAT. RESOURCES J. 309, 376 (1987).

8. *Nuclear waste site*, *supra* note 5; *see* Montange, *supra* note 7, at 376.

9. *Nuclear waste site*, *supra* note 5; *see* Michael B. Gerrard, *The Victims of NIMBY*, 21 FORDHAM URB. L.J. 495, 498 (1994).

10. *Nuclear waste site*, *supra* note 5; *see* Gerrard, *supra* note 9, at 498.

11. *Nuclear waste site*, *supra* note 5; *see* Michael B. Gerrard, *Fear and Loathing in the Siting of Hazardous and Radioactive Waste Facilities: A Comprehensive Approach to a Misperceived Crisis*, 68 TUL. L. REV. 1047, 1079 (1994).

12. *Nuclear waste site*, *supra* note 5; *see* Hess, *supra* note 4, at 189.

Low-Level Waste

The catch-all category of radioactive waste, low-level waste, is any radioactive waste that does not fall into one of the above categories.[13] Typical low-level waste has a very low ratio of radiation level to volume. However, some low-level waste, such as irradiated metal parts in the reactor, can have a higher ratio of radiation level to volume.[14] Most low-level waste is buried in shallow pits on site.[15]

Mixed Waste

Waste which contains both chemical and radioactive waste is classified as mixed waste. All of the high-level waste and transuranic waste is treated as mixed waste.[16]

Uranium-Mill Tailings

The large volume of materials left over during the mining and milling process is referred to as uranium-mill tailings. Although uranium-mill tailings are not classified as waste, they pose hazards to the environment. Tailings release radon and are usually contaminated with toxic heavy metals.[17]

The environmental impact of these types of waste was concealed for many years, but major public attention was focused on nuclear waste after leaks and scandals could no longer be hidden. Although the Three Mile Island debacle in 1979 had turned public opinion against nuclear power plants, the risk of nuclear waste was not well known by the general public.

Now it is public knowledge that all of the Government's nuclear

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13. *Nuclear waste site*, *supra* note 5; *see* Hess, *supra* note 4, at 189.

14. *Nuclear waste site*, *supra* note 5; *see* William F. Newberry, *The Rise and Fall and Rise and Fall of American Public Policy on Disposal of Low Level Radioactive Waste*, 35 S.C. ENVTL. L.J. 43, 44 (1993).

15. *Nuclear waste site*, *supra* note 5; *see* Hess, *supra* note 4, at 189.

16. *Nuclear waste site*, *supra* note 5.

17. *Id. See generally* John D. Collins, *Reclamation and Groundwater Restoration in the Uranium Milling Industry: An Assessment of UMTRCA, Title II*, 11 J. NAT. RESOURCES & ENVTL. L. 23, 24 (1995-96) (discussing uranium-mill tailings in more detail).

facilities are polluted.[18] Many have been forced to shut down due to the environmental dangers they present.[19] Physical wastes were only one segment of the damages done. The radiation spewed into the air from hundreds of atmospheric tests, leaving plutonium and other deadly contaminants in the bones and bodies of all living things is also in question. Thousands of stockpiled nuclear weapons contain the potential to release radioactive contamination that could kill all earthly life. The Chernobyl catastrophe alone has given an estimated 40,000 people terminal cancer.[20] It is hard to dispute that nuclear waste is a tremendous health hazard, but for years proponents of nuclear power and the arms race did their best. It's time to be straight with people. These wastes are dangerous, they will be dangerous for thousands of years, and the storage facilities are inadequate, overloaded, and unsafe.

PROBLEMS FACING THE UNITED STATES

As of 1986, the DOE was storing over ten million cubic feet of high level wastes at three sites.[21] The majority of this waste is at the Hanford, WA site, which sprawls over 560 square miles, located next to the Columbia River.[22] The high-level wastes at Hanford are stored in giant steel tanks. Over sixty of these tanks have leaked.[23] Additionally, since 1943, there have been 127 significant accidents involving nuclear weapons' production at Hanford.[24]

The long term storage needs of transuranic wastes prompted DOE to start construction of a specialized dump, the Waste Isolation Pilot Project ("WIPP"), in 1978 near New Mexico's Carlsbad Caverns.[25] The DOE has also offered to take radioactive wastes at

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18. SETH SHULMAN, THE THREAT AT HOME: CONFRONTING THE LEGACY OF THE U.S. MILITARY 95 (1992).

19. *Id.*

20. Tony Caplan, *Britians Nuclear Experts Say 40,000 May Die From Chernobyl Effects*, U.P.I., Apr. 19, 1991, *available in* LEXIS, News Library, U.P.I. File.

21. Hess, *supra* note 4, at 188.

22. *Id.* at 173, 188.

23. *Id.*

24. Grover Glenn Hankins, *The Federal Tort Claims Act: A Smooth Stone for the Sling*, 31 GONZ. L. REV. 27, 31 (1995-96).

25. Gerrard, *supra* note 9, at 504.

WIPP that are mixed with toxic wastes. The nuclear utility industry has estimated proper disposal of these wastes at $10,000-$15,000 per cubic foot.[26]

Many U.S. nuclear plants are running out of storage space. Soon, nearly eighty plants may be forced to shut down due to lack of storage space, amounting to more than two-thirds of U.S. nuclear capacity.[27] Most of the facilities in the Nuclear Waste Complex contain contaminated groundwater and surface water. Contaminated soil and sediments are estimated to total billions of cubic meters.[28]

The total cost of environmental restoration, waste management, and related environmental activities for the DOE at their facilities is estimated to be as high as $265 billion over the next seventy-five years.[29] The nuclear waste disposal sites and power plants in the former Soviet Union are in worse shape than ours. Losing one out of every ten barrels of oil, and flaring off billions of cubic feet of gas have been common occurrences in the former Soviet Union for years.[30]

A solution must be found for this environmental hazard. We've poisoned the earth, not just for our children or our grandchildren, but for *thousands* of years to come.[31] How can we dispose of something that will exist in a hazardous state for over 100,000 years? Although we have no place to put it, we continue to produce nuclear waste in copious amounts. When do we stop? How many rivers need to be poisoned? How many animals have to be destroyed? How many crippled and deformed children need to be born? How many people have to die before we decide to stop producing nuclear waste and start disposing of it?

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26. Richard R. Zuercher, *States Prod DOE to Accept Commercial Mixed Waste*, 14 INSIDE N.R.C. 3 (1992), *available in* 1992 WL 2455688.

27. *Select Interim Nuclear Report*, PORTLAND OREGONIAN, Sept. 28, 1995, at C08, *available in* 1995 WL 9193944.

28. Hess, *supra* note 4, at 188.

29. J. COM., July 29, 1996, *available in* 1996 WL 8130304.

30. Robert J. Gavigan, *Siberia's Environment: A Challenge to Traditional Thinking*, 8 GEO. INT'L. ENVTL. L. REV. 333, 342 (1996).

31. CLOSING THE CIRCLE ON THE SPLITTING OF THE ATOM, THE ENVIRONMENTAL LEGACY OF NUCLEAR WEAPONS PRODUCTION IN THE UNITED STATES AND WHAT THE DEPARTMENT OF ENERGY IS DOING ABOUT IT (U.S. Dep't of Energy, Off. of Envtl. Management, 1995).

There are dangerous proposals to bury this waste on remote islands in the South Pacific.[32] These proposals must be quashed to protect the people and the environment of this region. Nor should this waste be stored in any state or neighborhood where it can harm either human health or the environment. Solutions to the nuclear waste disposal problem are not self-evident, but we must invest as much intellectual, scientific, and political effort in finding solutions as we invested in creating the problem during the Cold War and arms race.

32. *See, e.g., South Pacific Leaders Say No to Nuclear Waste Dumps*, WEST'S LEGAL NEWS ENVTL LAW: RADIOACTIVE WASTES, Sept. 9, 1996, *available in* 1996 WL 505410.