

The Myth of Nuclear ‘Waste’

by Marjorie Mazel Hecht

There’s no such thing as *nuclear waste*! This nasty term was invented just to stop the development of civilian nuclear power.

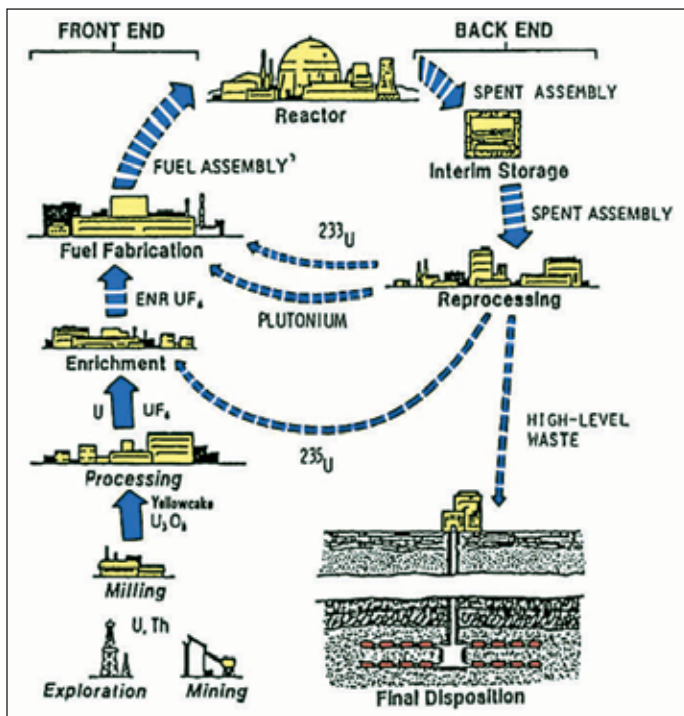
The spent fuel from nuclear power plants is actually a precious resource: About 96% of it can be recycled into new nuclear fuel. No other fuel source can make this claim—wood, coal, oil, or gas. Once these fuels are burned, all that’s left is some ash or airborne pollutant by-products, which nuclear energy does not produce.

Thus, nuclear is a truly *renewable* resource. Furthermore, unlike wind, solar, and other so-called alternative energy sources, a nuclear fission reactor (the fast reactor or breeder reactor) can actually *create more fuel* than it uses up.

In the Atoms for Peace days of the 1950s and 1960s, it was assumed that spent reactor fuel would be reprocessed into new reactor fuel. The initial plan was for the United States and other nuclear nations to have closed nuclear fuel cycles, not “once-through” cycles. In the closed fuel cycle, uranium is mined, enriched, and processed into fuel rods; then it is burned as fuel and reprocessed, to start the cycle again.¹

“Burying” spent fuel (as planned for Yucca Mountain) was not in the Atoms for Peace picture. Why bury a fuel source that could provide thousands of metric tons of uranium-238, fissile uranium-235, and plutonium-239 that could be used to make new reactor fuel?

But, as explained below, the U.S. stopped its reprocessing program in the 1970s and instead now stores spent nuclear fuel, waiting for a long-term burial site. Despite the scary headlines, the total amount of spent fuel in storage in the United States is small. The U.S. Department of Energy stated in 2007: “If we were to take all the spent fuel produced to date in the United States and stack it side-by-side, end-to-end, the fuel as-



The closed nuclear fuel cycle, shown here, reprocesses spent nuclear fuel to create new reactor fuel. Uranium is mined, milled, converted into uranium hexafluoride, and then enriched. Because most uranium (99.276%) is U-238, the uranium fuel must go through a process of enrichment, to increase the ratio of fissionable U-235 to the nonfissionable U-238 from about 0.7% to 3 to 4%. The enriched uranium is then fabricated into fuel rods for use in light water reactors.

Now, the United States has a “once through” fuel cycle, so that spent fuel is stored in cooling pools at the reactor site, and after it cools, it is stored in dry casks, awaiting “burial.” What a waste!

semblies would cover an area about the size of a football field to a depth of about five yards.”

The amount of usable fuel in that hypothetical football field, however, is vast. Burying 70,000 metric tons of spent nuclear fuel would waste 66,000 metric tons of uranium-238, which could be used to make new fuel, and an additional 1,200 metric tons of fissile uranium-235 and plutonium-239, the energetic part of the fuel mixture. Looking at it another way, the spent fuel produced by a single 1,000-megawatt nuclear plant over its

1. See “The Beauty of the Nuclear Fuel Cycle,” *21st Century Science & Technology*, Winter 2005-2006, www.21stcenturysciencetech.com/2006_articles/NuclearFuel.W05.pdf



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Dry casks of spent reactor fuel, stored on a concrete pad at a nuclear power plant. Why not reprocess it and burn it up?

40-year lifetime is equal to the energy in 5 billion gallons of oil, or 37 million tons of coal. Would you throw that away?

In addition to the multi-trillion-dollar amount of new reactor fuel that could be recycled from 96% of the spent nuclear fuel now in storage, the remaining 4% of so-called high-level waste—about 2,500 metric tons—is also usable. Dr. Michael Fox, a physical chemist and nuclear engineer, has estimated that there are about 80 tons each of cesium-137 and strontium-90 that could be separated out for use in medical applications, such as targeted radioisotope therapies, or sterilization of equipment.

Using isotope separation techniques, and fast-neutron bombardment for transmutation (technologies that the United States has refused to develop), we could separate out other valuable radioisotopes, like americium, which is widely used in smoke detectors, or plutonium-238, which is used to power heart pacemakers, as well as small reactors in space. Krypton-85, tritium, and promethium-147 are used in self-powered lights in remote applications; strontium-90 is used to provide electric power for remote weather stations, and in remote surveillance stations, navigational aids, and defense communications systems.

Progress vs. Malthus

To explain how a valuable resource became “waste,” it’s necessary to look back at the world situation as Atoms for Peace was taking off, and man was headed for the Moon. Scientific optimism and progress were all around. Most people assumed that the next generation

would have increasing prosperity.

But after the death of Franklin Roosevelt and the resurgence of the British imperial design, Malthus reared his ugly head. As the first director of UNESCO (the United Nations Educational, Scientific, and Cultural Organization) in 1945, Sir Julian Huxley euphemized Nazi eugenics into “conservation” and “environmentalism.”² Britain’s Prince Philip and the Netherlands’ Prince Bernhard (a former Nazi) organized a royal green movement to preserve raw materials and wildlife for their own pleasure and to remove what they considered to be an excess number of ordinary human beings.

Prince Bernhard established the “1001 Club” in 1971, an exclusive grouping with a \$10,000 initiation fee used to bankroll the International Union for the Conservation of Nature and the World Wildlife Fund, which Philip had founded in 1961 (along with Huxley). Prince Philip himself led the World Wildlife Foundation until 1996.

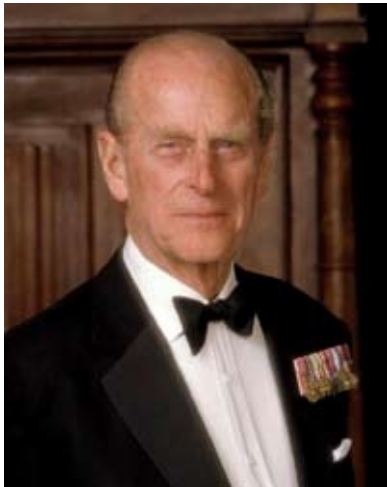
Behind the IUCN and the WWF, and their public relations appeal for cute fuzzies and other critters, is the hatred of proliferating human beings, especially those of color. If you think this is far-fetched, read some of Prince Philip’s own statements. He told *People* magazine in 1981: “Human population growth is probably the single most serious long-term threat to survival. We’re in for a major disaster if it isn’t curbed—not just for the natural world, but for the human world. The more people there are, the more resources they’ll consume, the more pollution they’ll create, the more fighting they will do. We have no option. If it isn’t controlled voluntarily, it will be controlled involuntarily by an increase in disease, starvation, and war.”³

The Malthusians’ Club of Rome, founded in 1968, campaigned for population control to preserve Earth’s limited resources, eliminating any mention of the fact that advanced technologies could create new resources.

In the United States, this anti-people view gained prominence with Paul Ehrlich’s 1968 book *The Population Bomb*, launching his message on American campuses: People are raping the Earth and the world popu-

2. For details on Huxley, Prince Philip, and Prince Bernhard, see *EIR*’s Special Report, “The True Story Behind the Fall of the House of Windsor,” September 1997.

3. *People* magazine, Dec. 21, 1981.



Prince Philip



Courtesy of the University of Chicago
Albert Wohlstetter

What do His Royal Highness and the now-deceased “Dr. Strangelove” have in common? They both want to reduce the human population and stop civilian nuclear power.

lation should be cut by two-thirds. Biologist Ehrlich, whose predictions of disaster have all bombed over the past 40 years, mentored many of the scientists prominent in environmental causes, including the nation’s new science advisor Dr. John Holdren, who co-authored one of Ehrlich’s books.

Another influential anti-population book was the 1972 *Limits to Growth*, written by a group of MIT Malthusians, who made dire pronouncements about the future, unless population were cut back. Never mentioned was the idea that advanced technologies could solve these problems and shatter any limits.

To these Malthusians, the development of civilian nuclear power was the enemy, not because it was costly or unsafe, but because they knew it would successfully free human society from poverty, disease, and Dark Age conditions. From the top down, the anti-nuclear leaders today know that this is true. Fear-mongering about the dangers of waste, radiation, and high costs are just cover stories for the well-meaning credulous. The real issue is population control.

Dr. Strangelove Invents Nuclear Waste

Behind the scenes working to destroy civilian nuclear power was “Dr. Strangelove,” the man behind the maniacal figure in the famous film of that name: Albert Wohlstetter. Wohlstetter, a Chicago University mathematician/logician and RAND consultant, became the nation’s top nuclear strategist and advisor to five Presi-

dents. He specialized in ghoulish scenarios of nuclear war, measured in death counts. He also mentored many of today’s leading neocons, including Richard Perle, Paul Wolfowitz, and Zalmay Khalilzad.⁴

Wohlstetter played a key role in killing civilian nuclear power and manipulating anti-nuclear policies. He deliberately equated civilian nuclear reactors with “bombs,” redefined spent nuclear fuel as “waste,” and campaigned to stop reprocessing, because it would only lead to more nuclear plants. He argued not only that developing countries shouldn’t have them, but that the United States should not continue to go nuclear, because of another nasty term that he promoted: “proliferation.” Although Wohlstetter admitted that nuclear would produce power cheaply, he insisted that cheap energy was not key for growth of an economy!

In California, Wohlstetter was instrumental in getting a law passed that prohibited any new nuclear plant being built until there was a national burial site to bury what he defined as high-level “waste.” Then, Wohlstetter’s environmentalist friends campaigned against having nuclear “waste” stored or buried anywhere—a fight that is still with us today.

At the same time, Wohlstetter et al. moved to stop reprocessing. It was not President Carter who took this step, as is commonly thought, but Wohlstetter and the neocons, including Dick Cheney. As chief of staff for President Ford, Cheney presided over a Presidential advisory committee that advised an end to the U.S. reprocessing program for the reasons that Wohlstetter had articulated. Ford came out with his anti-reprocessing policy in 1976, during the election campaign. Jimmy Carter, who had an identical policy on reprocessing, won that election. Wohlstetter, then a consultant to the Department of Defense, wrote one of the key reports supporting Carter’s ban on reprocessing.⁵

4. “Albert Wohlstetter’s Legacy: The Neo-cons, Not Carter, Killed Nuclear Energy,” *21st Century Science & Technology*, Spring-Summer 2006, www.21stcenturysciencetech.com/2006_articles/spring%202006/Special_Report.pdf

5. For the inside story on reprocessing, see Clinton Bastin, “We Need to Reprocess Nuclear Fuel and Can Do It Safely, at Reasonable Cost,” *21st Century Science & Technology*, Summer 2008, www.21stcenturysciencetech.com/Articles%202008/Summer_2008/Reprocessing.pdf.

Which End Is Up?

Nobody likes “waste,” and so the Wohlstetter strategy, which labeled nuclear fuel as “waste,” easily became a pillar of the environmentalist movement. Environmentalists today have a fixation on “waste,” because to them it represents “evil” industrialized civilization. Human beings are measured in terms of how much solid waste they produce each year. In the United States, the “Environmental Almanac” solemnly warns, each American creates three-quarters of a ton of solid waste yearly! The obvious solution is to stop looking at the wrong end of the human being. Instead, focus on the head, and how the human mind can invent new solutions to problems!

Here are some of the solutions:

We know how to reprocess used nuclear fuel, and can do it safely, as this country did for years. We also know that there are new technologies to be developed that can eliminate the long-lived radioisotopes in the 4% of used nuclear fuel that cannot be recycled. New technologies could retrieve many of these isotopes for use in medicine and industry.

We can develop fusion power, with high enough temperatures (millions of degrees) to reduce nuclear spent fuel and other matter—including garbage or rock—down to its constituent elements. The fusion torch was an idea patented in the 1960s, but its development was stopped by the same anti-nuclear forces noted above. Plasma torches, with lower than fusion temperatures, are used today in industry in several applications—steelmaking, for example.

The idea here, absent from the green mentality, is that advanced technologies should be used to eliminate pollution. For every problem there is a solution.

The anti-nukes know that reprocessing is possible. Their next argument is “safety.” They assume that human beings are not capable of using advanced technologies safely. Of course, all of life is risky, and it is through human beings’ creative ability that we design ways to protect ourselves from danger. Again, the anti-nukes’ argument looks at the wrong end of the human being.

But then comes the argument: “What about terrorism? What if bad people get hold of nuclear materials?” The United States successfully reprocessed spent nuclear fuel in the past, in a secure fashion. We can do it again.

“Ah, but it costs too much,” the learned anti-nukes of the Union of Concerned Scientists, among others,



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Assembling fuel rods for a light water reactor. The enriched uranium fuel is converted into uranium dioxide and fabricated into uniform pellets. The pellets are loaded into long tubes made out of a zirconium alloy, and the rods are loaded into the core of a nuclear reactor.

then say. They produce an accountant’s balance sheet of costs and benefits to show that it’s cheaper *not* to reprocess. Left out of this accountant’s argument, however, is reality. We are not going to get out of civilization’s most catastrophic financial collapse unless we massively invest now in the infrastructure projects, including nuclear power plants, that will guarantee adequate power for future generations. Not doing that will kill people. The cost/benefit accountant’s mentality is a death trap.

The leading anti-nukes like that death trap, because they want to eliminate 4 billion people or more. The question is, how many of the unsuspecting environmentalists who have fallen for the nuclear “waste” argument will wake up, and use their heads?