

## A Little Radiation Is Not Good For You — NRC

By John LaForge

In a rare pushback against radioactive polluters, the Nuclear Regulatory Commission — well known as a rubber stamp for the nuclear industry — has flatly rejected an attempt to further weaken the agency's radiation exposure regulations.

After six years of deliberation, the NRC's three commissioners, two Democrats and one Republican, voted unanimously to reject formal petitions submitted in February 2015 urging the agency to adopt a cost-cutting scheme known as "hormesis," which claims that "a little radiation is good for you." The September 16 decision by the NRC says this threshold theory posits that "there is some threshold dose below which there is either no radiation-related health detriment or a radiation-related health benefit that outweighs any detriment." The order then rebukes this concept, finding the petitioners "fail to present an adequate basis supporting the request," and "Convincing evidence has not yet demonstrated the existence of a threshold below which there would be no ... effects from exposure to low radiation doses."

The basis for hormesis had been explicitly rejected ten years earlier, the NRC pointed out, by the

National Academy of Sciences in its 2005 report "Biologic Effects of Ionizing Radiation, 7th Ed" or BEIR-VII. The National Research Council summed up its book-length BEIR-VII report saying, "the smallest dose has the potential to cause a small increase in risk to humans."

Industrial producers of radioactive pollution have pushed for weaker radiation exposure limits and for deregulation of radioactive emissions from nuclear reactors, uranium processing plants, fuel fabrication operations, medical isotope manufacturing systems, and weapons production sites. In 2002, Roger Clarke, then president of the International Commission on Radiological Protection, warned in the May 1992 *Bulletin of the Atomic Scientists*, "Some people think that too much money is being spent to achieve low[er] levels of residual contamination."

Clarke's "some people" are nuclear industrialists who build and operate nuclear weapons and reactors, produce uranium fuel rods and medicinal isotopes, create radioactive waste, and waste storage systems, and who are permitted by the NRC to disperse radioactively contaminated water and gases. The industry and the 2015 petitioners want, in Roger Clarke's words, "a threshold in the

dose-response relationship in order to reduce the expenditure." And as the journal *Science* reported in July 1999, "Billions of dollars are at stake. Stricter standards could increase the amount that agencies and industries must spend to clean up radioactive waste and protect workers."

The same year that the petitioners appealed to the NRC, a landmark international study reported in the British journal *Lancet Haematology* for July 2015 concluded, "In summary, this study provides strong evidence of an association between protracted low dose radiation exposure and leukaemia mortality."

As reported in the journal *Nature* in June 2015, "The finding scuppers the popular idea that there might be a threshold dose below which radiation is harmless [i.e. hormesis] — and provides scientists with some hard numbers to quantify the risks of everyday exposures."

In addition, between 1977 and 1990, scientists tripled their estimate of the damage inflicted by a given dose of radiation. A study published in the March 1992 *American Journal of Industrial Medicine* found that nuclear weapons production workers exposed to small doses were four to eight times more likely to contract cancer than previously estimated. And a wide-ranging analysis of 46 peer-reviewed studies, published in February 2013 in *Biological Reviews*, found that even the very lowest background levels of radiation exposure are harmful to health and have statistically significant negative effects on DNA.

In public comments made to the NRC about the original petitions, Nukewatch suggested that, "Contrary to the petitioners' recommendation, the NRC should adopt the 1990 recommendations of the International Commission on Radiological Protection and drastically reduce the maximum allowable radiation dose for nuclear industry workers, medical personnel, and others exposed to radiation on the job. The ICRP's 1990 recommendations were to cut annual exposure limits by over half, from 50 to 20 millisieverts per-year for nuclear workers, and from five millisievert-per-year to one for the general public. These 1990 recommendations have never been adopted by the United States, although most other countries have done so."

At long last, at least in the hormesis case, the NRC has decided not to make radiation matters worse.

### "MILLIONS OF YEARS"

## How Long Does Reactor Waste Stay Deadly?

From 1982 to 2004, government regulators used 10,000 years as the time-frame required to isolate used nuclear reactor fuel rods from the environment and the water. Since no container system can be shown to be up to this task, waste dump engineers simply plan for limited containment, after which the corrosion of storage casks and the dispersal of their deadly contents are considered inevitable.

Then a federal appeals court decided 10,000 years is a gross underestimate of the waste's lethal persistence, and, in July 2004, the US Circuit Court of Appeals for the District of Columbia ruled in *Nuclear Energy Institute, Inc. v. Environmental Protection Agency* that the National Academy of Sciences found "no scientific basis for limiting the time period of the individual risk standard to 10,000 years." The appeals court ruled that "repository performance" must be judged on "a time scale that is on the order of 10<sup>6</sup> [one million] years."

One million years (50,000 generations) is an unfathomable concept and the plural "millions of years" is even more mind boggling. News accounts have repeatedly noted that high-level radioactive waste "remains radioactive for millions of years." (*New York Times*, "Work is Faltering on US Repository for Atomic Waste," Jan. 17, and "A Hitch in Plans for Nuclear Posterity," Feb. 12, 1989). — **JL**



## NRC Approves Waste Site in Texas in Spite of Broad-Based Opposition

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better SNF cask and canister designs before attempting to transport irradiated nuclear fuel. Yet ISP expects its "Consolidated Interim Storage Facility" to open and start accepting shipments in the next few years. However, a lawsuit in federal court and near-unanimous opposition in the Texas legislature to importing spent nuclear fuel could upend ISP's expectations.

Siting nuclear facilities is supposed to require the consent of the host communities, but Texas has made it clear on every level it does not consent. In September, prior to the NRC licensing of the ISP facility, the Texas legislature approved a bill banning storage or disposal of high-level radioactive waste in the state, and directing the Texas Commission on Environmental Quality to deny state permits that the ISP project needs. The measure passed the Texas Senate unanimously, and passed the Texas House 119-3.

"This kind of bipartisan vote is very rare," said Karen Hadden, executive director of the Sustainable Energy and Economic Development (SEED) Coalition. "The message should be loud and clear: Texas doesn't want the nation's deadliest nuclear waste and does not consent to being a dumping ground."

Texas Governor Abbott signed the bill into law a week before the NRC's license approval. After it, Gov. Abbot said on Twitter, "Texas will not become America's nuclear waste dumping ground." Before the Texas Legislature passed the law, opposition to the ISP project in Texas was widespread and vocal.

Abbott and a group of Texas Congressional Representatives wrote to the NRC opposing the project. Reso-

lutions against importing the waste to Texas were passed by Andrews County and five others, as well as three cities, representing a total of 5.4 million Texans. School districts, the Midland Chamber of Commerce, and oil and gas companies joined environmental and faith-based groups in opposing the ISP project.

"I am thankful that the Texas Legislature voted to stop this dangerous nuclear waste from coming to their state," said Rose Gardner of the watchdog group Alliance for Environmental Strategies. Gardner is a party in a federal court challenge to the dumps. Two lawsuits that could block both the ISP project in Texas and the Holtec project in New Mexico — on the grounds that they violate federal law — are currently pending in the US Court of Appeals for the District of Columbia Circuit.

### Temporary dumps prohibited by federal law

Both dump proposals are based on the presumption that the Energy Department will "take title" to the deadly material as it leaves the privately owned reactor sites, and free its current owners of liability for it. However, the transfer of ownership from private hands to the federal government is specifically prohibited by the Nuclear Waste Policy Act (NWPA) of 1982, as Amended, unless and until a permanent, deep dump site is open and operating — a prospect that remains decades away. The liability provision in the NWPA legally prevents "interim" storage sites from becoming permanent by default.

The Texas and New Mexico sites' licensing processes have been approved in violation of the NWPA on the presumption that the law will be amended again.

"The NRC should never have even considered these applications, because they blatantly violate the federal Nuclear Waste Policy Act by assuming that the federal government will take responsibility [ownership] of the waste before a permanent repository is licensed and operating," said Diane Curran, an attorney for Beyond Nuclear, one of the groups that brought the suits. "Licensing the ISP and Holtec facilities would defeat Congress's purpose of ensuring that high-level waste generated by US reactors will go to a deep geologic repository, rather than to vulnerable surface facilities that may become permanent nuclear waste dumps."

Now that the NRC has approved the ISP facility, the briefing phase of the federal Court of Appeals lawsuit is expected to begin. Participants in the legal challenge to the ISP and Holtec facilities are a national coalition of watchdog groups that includes Beyond Nuclear, the Sierra Club, the Austin-based SEED Coalition, and Don't Waste Michigan.

Both lawsuits were also joined by Fasken Land & Minerals, Ltd., an oil and gas company, and the Permian Basin Land and Royalty Owners Association which promotes ranching and mineral rights.

"The grand illusion of nuclear power is now revealed," said Michael Keegan of Don't Waste Michigan.

"There is nowhere to put the waste. No community consents to accept nuclear waste — not Texas, not Michigan, or anywhere on the planet. We have to stop making it," Keegan said.