

NUCLEAR SHORTS

Waste Transport Accident Risks Underrated

The risks of accidents and fires with cross-country shipments of high-level radioactive waste have been “underestimated” by the Nuclear Regulatory Commission (NRC), according to an independent analysis. Freight train accidents per mile are some “36 times the NRC/DOT estimate” says the author, Dr. Marvin Resnikoff, a physicist with Radioactive Waste Management Associates. Resnikoff reviewed the Draft Environmental Impact Statement (DEIS) written by Interim Storage Partners and Waste Control Specialists—firms seeking a license for a dump site in Texas. Resnikoff concluded that the likelihood of transportation accidents involving fires was “underestimated,” because the DEIS fails to consider blazes lasting longer than 11 hours, a cap set by the NRC. Resnikoff points to the 2013 Lac-Mégantic, Quebec, rail disaster that resulted in a 48-hour-long fire, killed 47 people, and destroyed half the downtown buildings. Had the train been carrying fissionable materials instead of crude oil, the damages and death toll would have been worse.

Further, the DEIS overlooks the inability of transport casks to withstand temperatures created by fires—particularly high temperatures typically found near the tops and bottoms of casks—which cause seals to degrade faster than the NRC model suggests, resulting in the release of radioactive gases and particles.

Resnikoff also faulted the DEIS’s analysis for only reviewing “mid-burnup” fuels (uranium that’s been moderately burned in a reactor), while ignoring “high-burnup” fuels which hold increased amounts of highly radioactive fission products, produced inside power reactors. The NRC must “more carefully review the impact of transporting high burnup fuel to the proposed ... facility,” he said.

—M. Resnikoff, Ph.D., Radioactive Waste Management, Comments on ISP/WCS DEIS, October 2020

50-Year-Old Wisc. Reactors Want 30 Years More

The owner of the last two operating nuclear reactors in Wisconsin, NextEra Energy, has applied to the NRC asking to run the Point Beach units for 80 years—twice the limit in their original licenses and double their engineered lifespan—until 2050.

The Point Beach reactors on Lake Michigan near Green Bay are 50 years old, making them two of the oldest still operating in the United States. Licenses for the two reactors are now set to expire in 2030 and 2033.

Kevin Kamps of Beyond Nuclear, a watchdog group in Takoma Park, Maryland, told Nukewatch, “This is scary for several reasons. One reason is that one reactor at Point Beach is tied for worst ‘neutron-embrittled reactor vessel’ in the United States.” (Years of neutron bombardment from nuclear fissioning inside the reactor make the giant machine increasingly brittle and unstable.)

“When reactor embrittlement risks are reviewed by the NRC,” Kamps writes, “the commission simply lowers the safety standards nationwide by weakening the regulations (for embrittled/pressurized thermal shock safety). The NRC has done this time and time again.”

The NRC has approved only two other such 80-year-long license exceptions: Pennsylvania’s Peach Bottom and Florida’s Turkey Point. Three of the oldest operating US reactors—50-yr-old Monticello in Minnesota; 49-yr-old Dresden 3 in Illinois; and 47-yr-old Peach Bottom 2 & 3 in Pennsylvania—are General Electric “Mark I” units, exactly like the Fukushima reactors that exploded and melted in 2011. —Beyond Nuclear, Nov. 23; AP, Nov. 21, 2020; Nuclear Regulatory Commission, “Operating Nuclear Power Reactors,” Oct. 21, 2019

NRC Should Fix Potentially Fatal US Reactor Flaw

On October 16, Beyond Nuclear submitted a “federal enforcement petition” to the NRC urging the immediate shutdown of the country’s 19 GE “Mark I” boiling water reactors until their faulty containment vents are replaced. The destroyed Fukushima reactors are the same design as these 19 US units. “The NRC has known for decades that the [GE] Mark I containment is ... too small to contain the

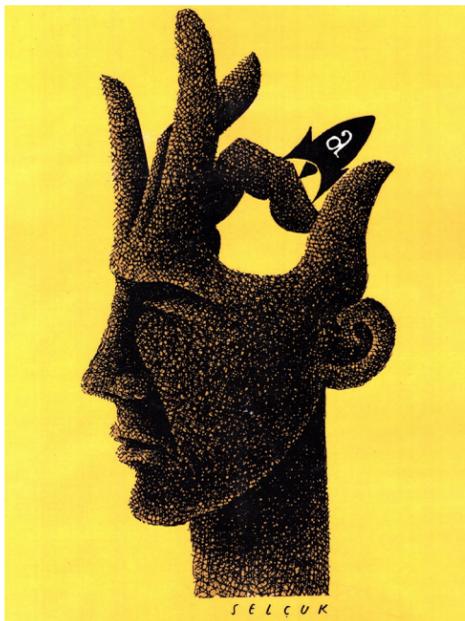
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dynamic force of a severe accident,” said Paul Gunter, director of the Reactor Oversight Project at Beyond Nuclear.

In the early 1970s, when many Mark I units were still under construction, the Atomic Energy Commission—the NRC’s predecessor—concealed design flaws and vulnerabilities in the reactors, fearing that disclosing the defects would lead to the shutdown of the reactors. GE engineers reportedly said in 1976 that nuclear power is “so dangerous that it now threatens the very existence of life on this planet.”

In the aftermath of Fukushima, the NRC ordered owners of Mark I reactors to install new “reliable” vents intended to prevent an uncontrolled release of radioactive material during a severe accident. However, according to the petition, the installed vents cannot handle all the thermal energy that could be generated during a severe accident. The NRC stipulated that the new vents handle just 1% of a reactor’s thermal power level under accident conditions. In order to “cope with the vast amounts of thermal energy, steam, and explosive hydrogen gas produced during a partial or complete meltdown accident,” a vent needs to be capable of removing at least 25 times as much thermal energy as the NRC stipulated in its order.

—Beyond Nuclear press release, Oct. 20, 2020



Thousands Oppose Haphazard, Unregulated Radioactive Waste Landfill Dumping

Nearly 10,000 comments were submitted to the US Nuclear Regulatory Commission (NRC) condemning the agency’s plan to deliberately allow radioactive waste, mainly from nuclear power reactors, to go into regular garbage dumps and other landfills that do not have radioactive waste licenses.

In one letter, Roxanne Brown, vice president of the United Steel Workers, wrote, “Putting nuclear waste, of any dosage level, in the hands of under-trained and unqualified workers is not only a bad decision for business and the environment, but hazardous to the people doing the work.”

The NRC proposes to “interpret” its rules, which now require radioactive waste to go to licensed sites. The change would allow waste to be sent to any dump granted a “specific exemption” by the NRC. “Exempt” landfills would be allowed to expose the public to as much radiation as operating nuclear power reactors or licensed nuclear waste sites—a level of exposure that can give cancer to one in every 500 people exposed over their lifetimes, according to Environmental Protection Agency calculations.

“Since there is no safe level of radiation exposure, all industrially generated nuclear waste needs to be isolated, not dispersed into landfills, air, water and possibly even recycled consumer goods,” said Diane D’Arrigo, who has spent 30 years following the issue for the non-profit Nuclear Information and Resource Service (NIRS). “The big concern is the radioactive danger to current and future generations and the unlimited amount of radioactivity released to the environment. Most commenters don’t like that there is no public notice or opportunity to even know if their local landfill gets ‘exempt’ authorization from the NRC,” D’Arrigo said.

“This proposal is sure to spawn fly-by-night dump operations on vacant lots, in urban renewal excava-

tions, and on brownfield sites of old factories,” said Terry Lodge, a Toledo-based environmental attorney working for NIRS. “As usual, the poor and most vulnerable populations will be the collateral damage from this dark atom that was supposed to save us.” —Nuclear Information and Resource Service, Oct. 21; United Steel Workers, June 29, 2020

DOE Plans to Ship Plutonium 1,400 Miles

In late August, the Energy Department (DOE) announced that it would dilute 9.5 metric tonnes of waste plutonium at the Savannah River Site (SRS) in South Carolina and ship it 1,400 miles to a military dumpsite in New Mexico. The DOE’s Waste Isolation Pilot Plant (WIPP) near Carlsbad, is an accident-plagued repository, licensed to store plutonium-contaminated radioactive waste left at 22 nuclear weapons production sites. The “downblended” weapons plutonium at Savannah River is typically shipped in “TRUPACT-II” containers made of multilayered stainless-steel. Up to three TRUPACT-II cans are hauled by a single semi-trailer truck. Shipment routes and a timeline for shipments will not be made public.

Plutonium is often referred to as the most deadly substance known to science. If ingested, even the tiniest amount of plutonium will continually bombard surrounding tissue with alpha particles greatly increasing the risk of various cancers. After dilution, the SRS plutonium waste is declared “below weapons grade” and would require extensive processing to be made into a nuclear weapon.

While the DOE’s National Nuclear Security Administration produced a Risk and Opportunity Analysis Report to assess potential transport dangers, the National Academies of Science said not all risks were “sufficiently captured and reviewed—especially in terms of health and safety.” The NAS report also noted that the number of shipments between Savannah River and WIPP will be far greater than from any other plutonium waste site.

Tom Clements, the director of Savannah River Site Watch, said, “While today’s announcement may sound good, SRS lacks down-blending [diluting] capacity and there is no schedule for the removal of the plutonium from SRS.” The current timeline projects that the plutonium will not be completely removed until 2049.

—Carlsbad *Current-Argus*, Sept. 15; Department of Energy, Aug. 31; National Academies Press, 2020

French Rad Waste Freighter Arrives in US

A freighter carrying high level radioactive waste from France arrived in Charleston, South Carolina, on November 20. The freighter, *Pacific Heron*, left Cherbourg November 5 with a load of radioisotope thermoelectric generators (RTGs), which had been used to power marine beacons. The *Pacific Heron* crossed the Atlantic with a deactivated location beacon—a common practice with shipments of radioactive waste—leaving the vessel difficult to locate and at higher risk of an accident, especially at night.

The RTGs contain strontium-90, a radioactive isotope dangerous for 300 years that is produced by nuclear reactors and bomb tests. It is known to cause leukemia, skin cancer, and bone cancer. In the body, strontium-90 behaves like calcium and permanently embeds itself in bone tissue, exposing the surrounding cells to continuous radiation. Because children have rapid bone growth, they are particularly susceptible to the carcinogenic effects of strontium-90.

The RTGs will be trucked across the US and buried in a shallow trench at the former Nevada Test Site, where RTGs have been disposed of in the past. Savannah River Site Watch reports that the RTGs are believed to have been fabricated by the US Department of Energy. The group said in a news release that neither the public in South Carolina, Nevada, nor the states along the route have granted permission for or even been informed of the transport of these materials through their jurisdictions. Neither the Nevada Attorney General nor the US Department Energy responded to requests for information. —Savannah River Site Watch, Nov. 17, 2020; CDC Toxicological Profile for Strontium, 2004

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