

US “Grossly Underestimates” Risk of Waste Fuel Fire



The wrecked waste fuel pool at Japan's Fukushima-Daiichi's reactor No. 3 in March 2013.

A radiation nightmare worse than Fukushima could hit the United States because of ignored risks, according to a startling new study from Princeton University. The US Nuclear Regulatory Agency (NRC) has greatly underestimated the risks of major radiation releases from waste cooling pool fires in the event of a loss of cooling water, the report says.

Waste uranium fuel rods, called “spent fuel” by industry and government, are kept in cooling pools near reactors for several years. After about four years, although still very hot, they can be removed and put into so-called “dry cask” storage.

Cooling pool water is pumped from nearby lakes, river or wells and must constantly circulate and cover the waste fuel, which is the hottest and most radioactive material in the nuclear industry. (Waste fuel from

Navy reactors is reportedly even more deadly.) Any loss of on-site electric power—like happened at Fukushima—can stop cooling water circulation, causing the water to boil away, and expose the fuel rods. Such loss of coolant can ignite a fuel fire and cause catastrophic amounts of radiation to be released.

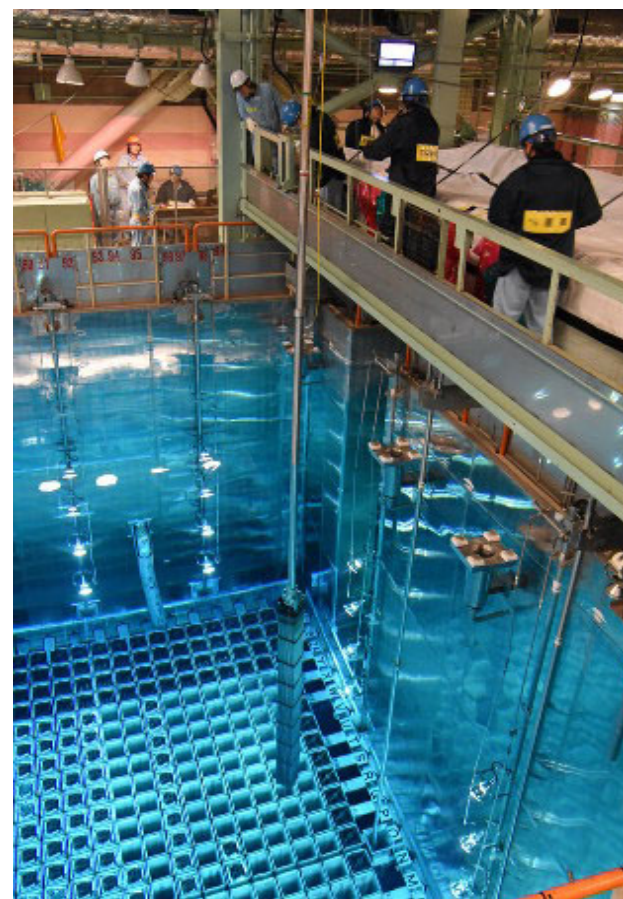
While nuclear reactors have emergency, back-up generators to circulate cooling water in the “core,” waste fuel pools do not have back-up power. The pools are particularly vulnerable to Fukushima-style “station blackouts”—as onsite loss-of-power is called.

The NRC has estimated that a major waste fuel pool fire at the Peach Bottom station in Pennsylvania would force the evacuation of 3.46 million people from 12,000 square miles, according to Richard Stone writing in *Science* magazine. But the Princeton researchers, who say they used a computer modeling system better than the NRC's, estimate that radioactive contamination would force 18 million people to evacuate from the surrounding 39,000 square miles.

Frank von Hippel, a nuclear security expert at Princeton University, and Princeton's Michael Schoeppner are the study's coauthors. They argue that the NRC's gross underestimates are the result of corporate and political interference. “The NRC has been pressured by the nuclear industry, directly, and through Congress, to low-ball the potential consequences of a fire because of concerns that increased costs could result in shutting down more nuclear power plants,” von Hippel told *Science Daily*. “We're talking about trillion-dollar consequences,” he says.

Von Hippel's and Schoeppner's report followed, by only a week, a study from the US National Academies of Sciences that concluded that the United States should make improvements at its waste fuel pools. The Academies' study recommends that the NRC and reactor operators upgrade their monitoring of the waste pools and augment the means of topping up water levels during an accident.

Another way to reduce the risk of waste fuel fires is to hurry the transfer of fuel from the cooling pools to dry casks. “As recently as 2013, the NRC concluded that the projected benefits do not justify the roughly \$4 billion cost of a wholesale transfer.



An intact waste fuel pool with an “assembly” of fuel rods being moved in the 20-foot covering of water that keeps the uranium from catching fire.

But the national academies' study concludes that the benefits of expedited transfer to dry casks are fivefold greater than NRC has calculated,” Stone reported in *Science*.

The contamination from such a fire “would be an unprecedented peacetime catastrophe,” von Hippel and Schoeppner conclude in their paper to be submitted to the journal *Science & Global Security*.

The paper, “Nuclear safety regulation in the post-Fukushima era,” was published May 26 in *Science*.

—Citizens for Legitimate Government, Reuters, and Beyond Nuclear, May 26, Physics.org, May 25, and *Science*, May, 24, 2017. —*JL*

Yucca Mt. Reconsidered Cont. from p. 4

had sought approval to test the feasibility of storing radioactive waste in boreholes three miles deep at sites in Texas, New Mexico and South Dakota, but confronted strong opposition from local communities. At one public hearing, someone suggested as an alternative waste site the newly discovered sinkhole in front of Mr. Trump's luxury resort at Mar-a-Lago.

After contractors faced resistance in every meeting with area residents in four potential locations, the agency announced, “Due to changes in budget priorities, the Department of Energy does not intend to continue supporting the Deep Borehole Field Test project.”

For updates on opposing bad radioactive waste storage and transport plans, follow the “Don't Waste America” campaign of Nuclear Information and Resource Service (see Additional Resources, p. 7).

—*Dakota Free Press*, May 24, 2017; Department of Energy, May 23, 2017; *Las Vegas Sun*, May 22, 2017; Indigenous Action Media, April 27, 2017; Nuclear Information and Resource Service, April, 2017; Native Community Action Council, 2017

Swiss Vote: Nuclear Out, Renewables In

On May 21, over 58% of voters in a Swiss referendum chose renewable energy over new nuclear power production. The vote paves the way for the country to move ahead with its clean power plan—focused on solar, wind, and hydro electricity—starting in January 2018. Regula Rytz, president of Switzerland's Green party, called the May vote a “moment of historic change,” and “absolutely magnificent.” The Swiss government first proposed the phase-out of nuclear in favor of renewable energy sources in 2011, following Fukushima's three-reactor disaster in Japan. Earlier in May, the Swiss government also drafted a law that would increase provisions for protecting the population in the event of a reactor accident.

—BBC, May 21; *The Local* (Switzerland), June 2, 2017

Socialized Risk, Privatized Benefits, Keep Bum Reactors Afloat

By Kelly Lundeen

Once again corporations get favors when they fail. Westinghouse Inc., maker of the untested AP1000 reactor design, declared bankruptcy March 29, choosing to restructure due to “certain financial and construction challenges.” Its reactors under construction in Georgia and in South Carolina were supposed to be producing electricity by now. Instead they're running \$12 billion over budget and three years behind schedule. Thanks to \$4.5 billion in ratepayer financing in South Carolina, \$3.9 billion in Georgia, and an \$8.3 billion federal loan guarantee authorized by the Department of Energy, the financial picture for Westinghouse, its parent company Toshiba and the state utilities Southern Company and Scana Energy, isn't as bad as it should be.



Nuclear industry lobbyists and their campaign donations guarantee close ties between the government and the nuclear industry which has always relied on taxpayer subsidies. Despite being hugely unprofitable, it survives. Last August, taxpayers in New York were roped into paying a \$7.6 billion to bailout that will benefit Exelon, Entergy and the French firm Electricité de France. Illinois taxpayers are on the hook for a \$2.34 billion bailout of Exelon. FirstEnergy is looking to rake in an additional \$1.2 billion from the taxpayers of Ohio, even after vocal opposition during legislative testimony in May prompted deliberations to be suspended. Similar legislation to support reactor bailouts is in the works in Connecticut, New Jersey, Texas, Maryland, and Pennsylvania.

The nuclear industry cannot survive indefinitely. France's nuclear giant Areva has reported financial losses in the billions which, along with the rest of

France's nuclear industry, could cost French taxpayers over \$10 billion. Toshiba, has announced that it will not be building any more reactors; its nuclear sector has reported a loss of \$6 billion, and that could go up to \$10 billion. The near future of nuclear power would appear gloomy if it weren't for its true saviors, the taxpayers, who will never have the clout of a nuclear lobbyist.

The \$8.3 billion federal loan authorized for Georgia by the DOE has barely been mentioned in mainstream media, while the “inexcusable” 2011 loan guarantee given to the solar power company Solyndra, which later failed, was covered extensively and called “scandalous” by the *Washington Post* among others. The Westinghouse loan was 15 times bigger than Solyndra's. Odds are that taxpayers won't get that federal loan money back.

The Westinghouse bankruptcy is just another sign of industry decline. Twelve reactor closures have been announced since 2015, although five of them have been reversed by bailouts. The speed of the decline will depend on how much the nuclear industry is cushioned by a plush, socialist-style welfare system draining the treasury, while the rest of us are subject to free market capitalism.

To help stop bailouts in your state, check out the Coalition Against Nuclear Bailouts (Ohio), Citizens Against Nuclear Bailouts (Pennsylvania), and Nuclear Information and Resource Service. Find contact information in the Additional Resources on page 7.

—PennEnergy, May 19, 2017; *Christian Science Monitor*, Mar. 30, 2017; *The State*, June 13, 2016; Southern Alliance for Clean Energy, Jan. 11, 2016; *Washington Post*, Dec. 25, 2011