

What are the high-level radioactive waste transport risks to the Hudson River, New York City, and New York State, if H.R. 2699 becomes law?

High-level radioactive waste (HLRW) barge shipments on surface waters, in and around the New York City metropolitan area, could result in catastrophic releases of hazardous radioactivity in the most densely populated urban area of our country, in the event of a transport accident, or even intentional attack. See the U.S. Department of Energy's (DOE) own routing maps for these potential barge shipments, and further background about the high risks, here: <https://www.nirs.org/wp-content/uploads/factsheets/nybargefactsheet92804.pdf>

That's up to 211 potential "Floating Fukushimas" on surface waters near New York City. In terms of the Indian Point barge shipments down the Hudson River, and even the Oyster Creek barge shipments around Staten Island, those risks would take place immediately adjacent to New York City, on or near the Hudson River itself. The security risks alone should make this a non-starter -- and yet DOE is officially considering doing this. The barges would carry giant rail-sized casks. That is, they would contain significantly more HLRW per container than Legal Weight Truck (LWT)-sized containers, and even significantly more HLRW than previous models of rail-sized casks. At the time of the backgrounder linked above, and the DOE maps/figures it cites -- year 2002 -- the biggest rail-sized casks held up to 24 pressurized water reactor irradiated nuclear fuel assemblies. Today, rail-sized casks are much bigger -- one Holtec International model can hold up to 37 PWR irradiated nuclear fuel assemblies. LWT-sized containers, by comparison, can hold only 4 PWR assemblies, at most. So breaching such giant rail-sized containers, holding nearly an order of magnitude more HLRW than LWT-sized casks, could result in significantly larger releases of hazardous radioactivity, because there is so much more contained in each container to begin with.

Here is a backgrounder about just how vulnerable these shipping casks are to attack, as by anti-tank weapons:

<http://archives.nirs.us/factsheets/nirsfctshdrycaskvulnerable.pdf>

Such an attack happening immediately adjacent to downtown Manhattan, on the Hudson River, is of course unthinkable. So why is DOE considering such barge shipments as an option?

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http://www.state.nv.us/nucwaste/news2017/pdf/States_Affected.pdf

for the road (in red) and rail (in purple) routes that would carry HLRW through the State of New York, bound for the Yucca Mountain, Nevada dump-site.

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http://www.state.nv.us/nucwaste/news2017/pdf/Cities_Affected.pdf

for an enlarged, close up map of the greater New York City metropolitan area, showing the road and rail routes.

Critics have long dubbed such road and rail shipments potential "Mobile Chernobyls," or, given the security risks, potential "Dirty Bombs on Wheels."

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http://www.state.nv.us/nucwaste/news2017/pdf/Congressional_Districts_Affected.pdf

827 rail-sized casks on trains, and another 657 truck-sized casks on the roads, would pass through New York State, bound for Yucca Mountain, Nevada, under the current 70,000 metric ton Yucca plan. But H.R. 2699 would increase Yucca's capacity to 110,000 MT, so the number of road and rail shipments through New York State could also go up, if reactors keep operating for years and decades to come, making even more waste. Also note at that link immediately above, on page 15 of 19 on the PDF counter, the 10 NY State U.S. congressional districts directly crossed by road and/or rail shipping routes are listed. But please note that even districts not directly crossed could be significantly impacted by an accident or attack -- as via airborne or waterborne radioactive fallout, that could travel long

distances, blowing on the winds, and flowing in surface waters. A vast region could also be impacted by contaminated food and drinking water supplies.

As shown by the figure on this map linked below, the grand total of 1,484 casks to be shipped through NY State on roads and rails, under the current 70,000 MT Yucca scheme, makes it the hardest hit state in the entire Northeast -- that's because those other Northeastern states with atomic reactors, and high-level radioactive waste, would be shipping through NY to get their wastes out west:

<http://www.state.nv.us/nucwaste/news2017/ymroutes17.png>

The opening of Consolidated Interim Storage Facilities (CISFs) in Texas and/or New Mexico would likewise result in large-scale high-level radioactive waste shipping -- only much nearer term, perhaps in just a few years from now. And in significantly higher numbers, potentially -- Holtec International has applied to store 173,600 MT of irradiated nuclear fuel in NM, 2.5 times Yucca's current legal limit; Interim Storage Partners another 40,000 MT in TX, more than half Yucca's current limit. That 213,600 MT grand total at the CISFs is, taken altogether, more than three times Yucca's current capacity limit. That means, nationally, three times the number of shipments than currently targeted for Yucca, if reactors keep operating and making that much waste in the years and decades to come. Thus, New York State could see significantly more than 1,484 casks traveling through, only nearer term, if one or both CISFs open in the next few years.

(And of course, there is a long list of problems with the targeted dumpsites in NV, NM, and TX as well -- from the risk of the Consolidated Interim Storage Facilities in NM and TX becoming de facto permanent surface storage, to lack of consent-based siting, to environmental injustice, to scientific unsuitability. The list of problems goes on.)

In addition to the risks of catastrophic releases of hazardous radioactivity in urban areas due to accidents or attacks during these shipments, there is also the inevitable gamma- and neutron-dose to bystanders as casks pass through, even during routine (incident-free) shipments. In this sense, they are like "Mobile X-ray Machines That Can't Be Turned Off." Nuclear Regulatory Commission permissible or allowable (not to be confused with safe) dose limits are 10 millirem per hour at 6.6 feet distance. That is one to two chest X-rays worth of gamma and/or neutron radiation, per hour, at two meters distance. At the cask's surface, 200 mR/hr is allowed/permitted. That is 10 to 20 chest X-rays worth, at the cask's exterior surface.

The region of influence for such "routine" radiation exposures is considered a half-mile (800 meters) in all directions from the center of the cask.

External contamination of shipping casks would mean significantly higher dose rates. Orano (formerly Areva) of France, a leader of Interim Storage Partners CISF in Texas, experienced many hundreds of contaminated shipments in the 1990s. A quarter to a third of all shipments bound for the La Hague reprocessing facility violated permissible dose rates. On average, the shipments emitted 500 times the permissible radiation dose. In one case, the shipment emitted 3,300 times the permissible dose rate.

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