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Holtec International HI-STORE Consolidated Interim Storage Facility Project

Comment On: NRC-2018-0052-0001

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General Comment

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Re: Docket ID NRC20180052

Submitted by Kevin Kamps, Radioactive Waste Specialist, Beyond Nuclear, May 11, 2018

Public Comment re: Risks of Loss of Institutional Control, if De Facto Permanent, Surface Storage, Parking Lot Dumps are Abandoned, Containers Fail, and Release Catastrophic Amounts of Hazardous Radioactivity into the Environment

Attachments

5 11 18 Risks of Loss of Institutional Control if De Facto Permanent Surface Storage Parking Lot Dumps are Abandoned as posted at Regulations dot gov

Re: "Docket ID NRC-2018-0052"

Submitted by Kevin Kamps, Radioactive Waste Specialist, Beyond Nuclear, May 11, 2018

Public Comment re: Risks of Loss of Institutional Control if De Facto Permanent, Surface Storage, "Parking Lot Dumps" are Abandoned, Containers Fail, and Release Catastrophic Amounts of Hazardous Radioactivity into the Environment

DOE (the U.S. Department of Energy) warned in its Feb. 2002 Final EIS (Environmental Impact Statement) on the proposed Yucca Mountain, Nevada national burial dump for highly radioactive wastes, that loss of institutional control over surface storage sites at reactors would eventually prove catastrophic, if those independent spent fuel storage installations (irradiated nuclear fuel dry cask storage) were abandoned and left to their fate.

Loss of institutional control means societal breakdown, so that maintenance, repair, and replacement of infrastructure and storage containers at Holtec/ELEA would be lost over long enough periods of time – in fact, even basic knowledge of the very existence of the facility itself there could be entirely lost/forgotten someday!

Entropy means that things falls apart, over long enough periods of time. It is the second law of thermodynamics, after all! DOE was focused on this happening at nuclear power plant sites, if irradiated nuclear fuel was abandoned there forever. But the same is true here. DOE used the argument in its Yucca FEIS as a way of pressuring states (and their congressional delegations) to support the proposed Nevada dumpsite, lest such a catastrophe unfold in their own jurisdictions and districts over time. Never mind that desperately needed upgrades to safety and security at these reactor sites have gone undone for years, and decades!

The prevailing national environmental movement consensus, since 2002, has been for Hardened On-Site Storage (HOSS), as close as possible to the point of generation, in order to prevent such radioactive releases at reactor sites. See the [Statement of Principles for Safeguarding Nuclear Waste at Reactors](http://ieer.org/wp/wp-content/uploads/2010/03/HOSS_PRINCIPLES_3-23-10x.pdf), with its list of signatory groups. < http://ieer.org/wp/wp-content/uploads/2010/03/HOSS_PRINCIPLES_3-23-10x.pdf >

If institutional control is eventually lost at the Holtec International/Eddy-Lea [Counties] Energy Alliance (ELEA) centralized interim storage facility (CISF, or at the Waste Control Specialists, LLC monitored retrievable storage (MRS) site in Andrews County, west Texas, just 38 miles or so to the southeast of Holtec/ELEA), the storage containers would eventually fail, and catastrophically release their forever hazardous, highly radioactive waste contents into the living environment. Hazardous and even deadly fallout would then flow with the winds and the waters, downwind and downstream (as well as down the generations, and up the food

chain), over greater and greater distances, over an unimaginably long time period. Remember, highly radioactive waste remains hazardous, even deadly, for at least a million years into the future. This was acknowledged by the U.S. Environmental Protection Agency (EPA) in 2008, under court order, in its Yucca Mountain dump regulations.

An environmental coalition, joined by the State of Nevada, filed a lawsuit in 2002, objecting to EPA's attempt to cut off regulations at Yucca after just 10,000 years post-burial of the waste containers. The D.C. Circuit Court of Appeals ruled with the environmental/Nevada coalition in 2004, ordering EPA back to the drawing boards on its Yucca regulations. Four years later, EPA published its million-year standard. It is still a significant underestimate of the hazard's persistence, however. As but one example, Iodine-129, an artificial radioactive isotope, generated by reactors, and present in irradiated nuclear fuel, has a half-life of 15.7 million years. Its hazardous persistence is at least ten times longer, or ***157 million years!***)

Such impacts could extend to soil, groundwater, surface water, flora and fauna, extending to significant distances downwind and downstream of the Holtec/ELEA site, midway (just over 30 miles to each) between Carlsbad and Hobbs, NM. The risks would also persist down the generations, and work their way up the food chain (on top of which, humans sit), through processes of bio-concentration, bio-accumulation, and bio-magnification.

At WCS, TX, just 38 miles or so to the east-southeast of Holtec/ELEA, the immediately adjacent, and perhaps even underlying, Ogallala Aquifer, would be put similarly at risk. (See the [Sacred Trust NM map < http://sacredtrustnm.org/wp-content/uploads/2016/02/2015update-ThreatsMap-11x17.pdf >](http://sacredtrustnm.org/wp-content/uploads/2016/02/2015update-ThreatsMap-11x17.pdf) for a clear picture of the lay of the land in s.e. NM and w. TX, and the large number of dirty, dangerous, and hazardous fossil fuel, nuclear, and other facilities are already located there!)

The Ogallala can also be considered downwind and downstream. Aquifers directly under or adjacent to WCS could be in direct communication with the Ogallala. Also, downwind or downstream surface level fallout from WCS could eventually find its way into the Ogallala, through natural flow paths (blowing with the winds, flowing with the rains and surface waters, deposition onto and into soil, downward flow to aquifers). The Ogallala, North America's largest, provides essential drinking and irrigation water for millions in Texas, New Mexico, Oklahoma, Kansas, Colorado, Nebraska, Wyoming, and South Dakota. As the water protectors at the Standing Rock Sioux Tribe reservation say on the Missouri River in North Dakota, *Mni Wiconi*, Water Is Life. This was made very clear by recent drinking water contamination disasters in Flint, Michigan; Charleston, West Virginia; the Animas River in Colorado, New Mexico and Utah; and Toledo, Ohio. A radioactive release into, or contamination of, the Ogallala would be catastrophic, for millions downstream. And ***given the more than million-year hazardous persistence associated with irradiated nuclear fuel, it is very possible that leakage of such radioactivity even at Holtec/ELEA, supposedly some tens of miles upstream/upwind of the***

Ogallala, could also impact it, over time, given water and air flows carrying the contamination there eventually!

In addition to all this, given their proximity, the cumulative impacts, and inter-connected risks, of the Holtec/ELEA, NM and WCS, TX CISFs must be addressed. How much, and in what ways, would a catastrophic radioactivity release at the Holtec/ELEA, NM CISF, impact the WCS, TX CISF? And vice versa.

Making these risks all the worse, NRC (the U.S. Nuclear Regulatory Commission) has allowed a quality assurance (QA) failure crisis to persist in the U.S. nuclear power industry for not years, but decades. These QA failures extend not only to on-site storage casks at reactors, but also to the shipping casks, and away-from-reactor storage casks. These QA violations, especially infamous regarding Holtec containers, would risk early failure of casks at the Holtec/ELEA CISF, let alone eventual degradation breaches over longer time periods, as due to weathering, erosion, corrosion, etc. of the Holtec/ELEA facility and storage containers, as due to loss of institutional control.

Industry -- and even NRC -- whistle-blowers called attention to these QA failure risks 18 long years ago, yet little to nothing has been done to correct them. These revelations had to do directly with Holtec containers. Industry whistle-blower Oscar Shirani questioned the structural integrity of NRC-approved and industry-utilized Holtec storage canisters and casks sitting still, going zero miles per hour, let alone traveling 60 miles per hour, or faster, on the railways (or traveling at slower speeds on heavy haul trucks, or floating on barges, to get the rail-sized containers to the nearest rail head for transfer onto the train tracks in the first place). Shirani was backed up in his allegations by NRC Midwest Region dry cask storage inspector, Dr. Ross Landsman, who warned "The NRC should stop the production of the casks, but they do not have the *chutzpah* to do it. This is the kind of thinking that causes space shuttles to hit the ground."

See a "[Summary of Oscar Shirani's Quality Assurance Violations Against Holtec Storage/Transport Casks.](http://www.beyondnuclear.org/centralized-storage/2017/4/5/summary-of-oscar-shirani-allegations-of-quality-assurance-v.html)" < <http://www.beyondnuclear.org/centralized-storage/2017/4/5/summary-of-oscar-shirani-allegations-of-quality-assurance-v.html> >

Such QA failures, shoddy design, and shoddy fabrication, of the storage/transport canister and casks, means that their eventual failure, and release of their deadly hazardous highly radioactive waste contents, will only happen all the sooner.

Although Shirani and Landsman's revelations were about Holtec casks (targeted for use at the Eddy-Lea Energy Alliance proposed centralized interim storage site in New Mexico, not far from WCS, TX), NRC's incompetence at best, or even collusion with industry, when it comes to cask QA violations, extends to other cask models and designs, including NAC (Nuclear Assurance Corporation) and Areva (formerly known as Cogema, but recently renamed Orano) canister and casks to be used at

WCS, TX. Although the Holtec/ELEA CISF/MRS site in NM would – presumably -- predominantly use Holtec canisters and casks, the company did brag in its CISF license application documents that its UMAX system could accommodate any and all NRC-certified canister/cask design in the U.S. This would include NAC and Areva canister/cask models, as well.

Nuclear Assurance Corporation (NAC) container – to be used at WCS, TX, and perhaps also at Holtec/ELEA, NM -- QA failures are of specific concern. Last autumn, shoddy welding by NAC led to the bottom literally falling out of an irradiated nuclear fuel assembly transfer caddy, allowing the highly radioactive (and dangerously fragile, in terms of short- and long-term structural integrity, given the exceeding thinness and brittleness of the zirconium cladding on the fuel rods) assembly to strike the bottom of the storage pool at Chalk River Nuclear Labs in Ontario, Canada. Such bad welding calls into question the welds on NAC storage and transport containers as well, such as those potentially to be used at Holtec/ELEA, NM (and certainly to be used at WCS, TX).

At the Davis-Besse atomic reactor on the Great Lakes shoreline near Toledo, Ohio, an Areva designed Transnuclear NUHOMS storage cask was loaded with irradiated nuclear fuel, despite local environmental group legal interventions to stop it, after it was revealed the walls of the inner canister holding the highly radioactive irradiated nuclear fuel waste were ground too thin during fabrication, in violation of the design's technical specifications. But violations of "tech. specs." for the design and manufacture of casks in the U.S. are as rampant as QA violations. Areva Transnuclear NUHOMS canisters and casks would be used at WCS, TX, and could also be used at Holtec/ELEA, NM.

All this boils down to the risk that *de facto* permanent, abandoned high-level radioactive waste surface storage, whether at WCS, TX or Holtec/ELEA, NM, could lead, sooner rather than later, to cask failure, and catastrophic radioactivity release.

Such level of detail about specific violations of QA and tech. specs., regarding other cask/canister models (such as the EnergySolutions VSC-24s, "Ventilated Storage Casks" holding 24 pressurized water reactor irradiated nuclear fuel assemblies) that could be used at Holtec/ELEA, NM, could also be cited.

NRC, in its so-called "Nuclear Waste Confidence" Draft Environmental Impact Statement (DEIS), asserted that, whether on-site at nuclear power plant sites, or at away-from-reactor (AFR) CISFs (as at Holtec/ELEA, NM; WCS, TX; etc.), the contents from failing dry casks could simply be transferred into brand new replacement casks. But not a single such transfer has ever taken place in the U.S. to date, dating back to the advent of dry cask storage (at the Surry nuclear power plant in Virginia) in the mid-1980s. This, despite the fact that numerous dry casks, as at Palisades nuclear power plant in MI, are acknowledged by industry and/or NRC to be defective (the fourth VSC-24 to be loaded at Palisades, in June 1994, was soon thereafter acknowledged by the nuclear utility to have defective welds; despite

pledging, under oath in federal court – and promising the public -- that problem dry casks would simply and quickly be unloaded back into the storage pool, 24 years have passed, and Palisades has done no such thing with its admittedly defective, yet fully loaded, dry cask just 150 yards or so from the waters of Lake Michigan, source of drinking water for many tens of millions of people downstream).

NRC asserted in its “Nuke Waste Con Game” (as critics dubbed it) DEIS that non-existent “Dry Transfer Systems” (DTSS) could be built at some unspecified future date, with no known source of funding, to accomplish this cask-to-cask transfer, when needed. Despite many thousands of public comments expressing concern about such an overly optimistic, science fiction/fantasy paper plan, NRC stood by its Dry Transfer System “confidence” in its Final EIS (NRC’s phrase “Nuclear Waste Confidence” had to be changed by the agency, to the euphemistic “Continued Storage of Spent Nuclear Fuel,” as critics had effectively changed the phrase to the derogatory “Nuke Waste Con Game”!)

Frighteningly, DTSS may be a fantasy plan on which NRC and Holtec/ELEA (and WCS) cannot actually deliver. In that case, abandonment and eventual failure of untended highly radioactive waste storage containers at Holtec/ELEA, and WCS, in the NM/TX borderlands, could well lead to the catastrophic releases of hazardous radioactivity into the environment that DOE warned about as possible at nuclear power plant sites, in its Yucca Mountain Final EIS in Feb. 2002! The risk that so-called “interim” or “temporary” (as if 40 years, or 120 years, or 300 years, or even many decades or centuries longer, could ever be called “interim” or “temporary” in the first place!) storage facilities will become *de facto* permanent, surface storage, “parking lot dumps,” significantly increases these loss of institutional control dangers.

You don’t have to take our word for it. Dr. Allison Macfarlane, the NRC Chairman, the agency’s top official and spokesman, warned in a note accompanying her Nuclear Waste Confidence vote several years ago, that loss of institutional control is almost guaranteed over a long enough period of time. In this regard, she disagreed with the NRC staff (which had prepared the Nuclear Waste Confidence Draft EIS), as well as her fellow NRC Commissioners, all of whom expressed confidence that institutional control would *not* be lost, and that such risks need not be worried about. But such false confidence, or overconfidence, and overly optimistic assurance (a.k.a. technological hubris), flies in the face of history (no matter which society, institutional control is eventually lost, as the society falters and fails), as well as physics (the second law of thermodynamics, things fall apart, entropy increases over time). Dr. Macfarlane is an internationally regarded natural scientist who has devoted her career to studying and addressing the societal and technical risks of managing highly radioactive wastes.

For more info., please contact Kevin Kamps, Beyond Nuclear’s Radioactive Waste Specialist, at kevin@beyondnuclear.org. Learn more about radioactive waste issues at

the various sub-sections of Beyond Nuclear's website, at:
<http://www.beyondnuclear.org/radioactive-waste/>