From: Michel Lee Council <lee2councilenergy@gmail.com>
Sent: Tuesday, November 3, 2020 11:59 PM
To: WCS_CISFEIS Resource
Subject: [External_Sender] CIECP & LEAF Comments on ISP/WCS CISF (NRC-2016-0231)
Attachments: CIECP & LEAF Comments on ISP-WCS CISF (Nov 3, 2020) (NRC-2016-0231).pdf

Kindly find enclosed Comments

Michel

Michel Lee, Esq.
Chairman
Council on Intelligent Energy & Conservation Policy (CIECP)

Federal Register Notice: 85FR27447
Comment Number: 10325

Mail Envelope Properties (001101d6b267$36dbabf0$a49303d0$)

Subject: [External_Sender] CIECP & LEAF Comments on ISP/WCS CISF (NRC-2016-0231)
Sent Date: 11/3/2020 11:59:01 PM
Received Date: 11/3/2020 11:59:11 PM
From: Michel Lee Council

Created By: lee2councilenergy@gmail.com

Recipients:

Post Office: com

Files	**Size**	**Date & Time**
MESSAGE	136	11/3/2020 11:59:11 PM
CIECP & LEAF Comments on ISP-WCS CISF (Nov 3, 2020) (NRC-2016-0231).pdf	209150	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Council on Intelligent Energy & Conservation Policy (CIECP) and LEAF (Legal Environmental Action Fund) of Hudson Valley Comments to U.S. Nuclear Regulatory Commission (NRC) re: NRC Draft Environmental Impact Statement for Interim Storage Partners/Waste Control Specialists (ISP/WCS) Consolidated Interim Storage Facility for High-Level Nuclear Waste in Andrews County, Texas (DEIS Docket ID NRC-2016-0231/Report Number NUREG-2239)

Submitted via: WCS_CISF_EIS@nrc.gov

Dear U.S. Nuclear Regulatory Commission (NRC) Commissioners and Staff,

Council on Intelligent Energy & Conservation Policy (CIECP) and LEAF (Legal Environmental Action Fund) of Hudson Valley oppose construction of a Consolidated Interim Storage Facility (CISF) for High-Level Nuclear Waste in Andrews County, Texas.

Our concern extends beyond the particulars of the facility proposed by Interim Storage Partners (ISP) and Waste Control Specialists (WCS) (a/k/a ISP/WCS).

CIECP and LEAF are signatories to the organizational coalition Comments submitted by Alliance for Environmental Strategies; Beyond Nuclear; Citizen Action New Mexico; and over a hundred other environmental, public health, social justice and civil society groups (Organizational Coalition Comments) regarding the Draft Environmental Impact Statement for Interim Storage Partners/Waste Control Specialists' Consolidated Interim Storage Facility (DEIS) issued by the U.S. Nuclear Regulatory Commission (NRC).

CIECP and LEAF here seek to briefly further expand on the DEIS critique of the Organizational Coalition Comments.

Broadly, we wish to emphasize the following points:

A CISF of the nature proposed by ISP/WCS represents a staggering and scopic national risk. This risk extends to all regions through which high level nuclear waste (spent fuel) may travel. Climate change, natural hazards, security considerations and deteriorating conditions at existing spent fuel pool and dry cask storage systems at Independent Spent Fuel Storage Installations (ISFSIs) mandates strong site-specific consideration and may justify near-term relocation of some of these hazardous materials. However embarking at this point in time in a massive, costly, and dangerous venture involving transport of tens of thousands of tons of high level nuclear waste over thousands of miles throughout the country on and proximate to deteriorated transportation infrastructure is utterly unjustifiable and most certainly does not serve the national public interest. That being said, many, if not most, of the risks would be elevated for the Southwestern and Western United States, especially New Mexico and Texas.

Selection of this site for storage of nuclear waste is environmentally unwise and socially unjust. It would represent concretization of nuclear industry determination to turn the Western Texas and Southeastern New Mexico region into a toxic sacrifice zone.

The DEIS is fatally flawed because it’s main findings rest on a multitude of assumptions that collapse upon scrutiny. The NRC avoids consideration of major factors and conditions that give

lie to the report's core conclusion, which may most appropriately summed up as: *Nothing can ever go seriously wrong.*

Of course, the NRC in the DEIS cursorily concedes the risk of a high consequence event. Well into the DEIS – on the 303rd page of the 484-page document – the NRC acknowledges:

The consequences of a severe (or beyond-1 design-basis) accident, if one occurs, could be significant and destabilizing. The impact determinations for these accidents, however, consider the low probability of these events. The environmental impact determination with respect to severe accidents, therefore, is based on the risk, which the NRC defines as the product of the probability and the consequences of an accident. This means that a high-consequence, low-probability event, like a severe accident, could result in a small impact determination, if the risk is sufficiently low. (DEIS, p 4-95)

We will note below just a few of the realities that challenge the presupposition that a high-consequence event is of low-probability. But, even assuming *arguendo* the likelihood of low-probability, the NRC fails to describe what a high-consequence event might entail. Catastrophic consequences are, it is beyond cavil, of high – if not the highest – level of concern to most members of the public. Even if there is only a one-in-a-million chance of calamity, the NRC has a responsibility to communicate the nature of a potential disaster, even if the agency discounts it.

Nuclear waste is the most hazardous material on the planet. The National Academy of Sciences has determined that spent fuel needs to be sequestered from the environment for a million years. The US government has expended billions and labored in collaboration with many publicly funded research labs and highly esteemed academic institutions for well over half a century to find a permanent, safe, societally acceptable permanent repository for the country's high level nuclear waste to no avail. If any genuine consensus about nuclear waste disposition existed, a repository would have long been up and running by now. But, in fact, there is currently not a single operational large-scale permanent repository for commercial nuclear waste anywhere in the world. The US commercial nuclear power industry has generated the largest quantity of radioactivity on the planet – over 80,000 metric tons so far – with more being produced every day reactors continue to operate. Each of the spent fuel canisters anticipated to be shipped to the ISP/CWS CISF, as well as each of the canisters which would be destined for the Holtec International's even more massive proposed CISF mere miles away in New Mexico, would contain as much radioactive cesium-137 (Cs-137) as released by the 1986 Chernobyl nuclear disaster which rendered over 1,000 square miles of the former Soviet Union an "Exclusion Zone" still deemed unfit for human habitation. Thus a major incident, regardless of its likelihood, could render much of Texas, New Mexico and areas of neighboring states uninhabitable for a prolonged duration.

If the public is being asked to take that gamble, it has the right to know what is at risk.

The DEIS makes fleeting reference to the Price-Anderson Act of 1957, noting that it "*provides accident liability for incidents (including those caused by sabotage) involving the release of nuclear material for SNF transportation*". (DEIS, p 8-6) What the DEIS does not note is that Price-Anderson was enacted by Congress at the dawn of the nuclear power age with the expressed intent of being temporary, needed just until the nuclear industry could get itself established and obtain private insurance coverage on the market like every other industry. Yet – as the many decades have flipped by – the insurance industry (an independent arbiter of the probability game) has no interest in underwriting such boundless risk. More tellingly, neither

does the commercial nuclear industry itself. To the contrary the industry has actively lobbied to extend continuation of Price-Anderson, with coverage now capped at a little over $13 billion – a pittance, given the potential many trillions in damage. The fact that neither the insurance or nuclear industry are willing to bet the odds testifies to the enormity of the downside risk.

To be clear, CIECP and LEAF are not suggesting that the NRC should delve into pure conjecture or engage in an exposition of any conceivable high-consequence scenario. What we are advancing is that the NRC has an obligation to honestly acknowledge with a reasonable level of detail, the ambit of damage and danger to which the public may be exposed, and to state so plainly early in the text of the assessment, and prior to qualification.

Critically, in the matter at hand, even the NRC's assessment of low-probability is unsubstantiated. To begin with, the DEIS incorporates no uncertainty component. This is astonishing given the fact that, as discussed by the U.S. Nuclear Waste Technical Review Board (NWTRB) in a 2019 report to Congress and the Secretary of Energy, while small scale small-scale shipments of spent nuclear fuel (SNF) and military high-level nuclear waste (HLW) have occurred for decades, most notably in periodic shipments of naval SNF by the US Navy, "transporting large quantities of SNF and HLW has not been done in this country".[1] The NWTRB further observes:

The complexity and scale of the nation's SNF and HLW management program make resolving technical and integration issues a challenge. SNF and HLW inventories in the U.S. include a diverse collection of waste forms, waste storage containers, storage locations and conditions, waste transportation containers, and licensing requirements. Different waste storage sites also have varying degrees of accessibility for large transport vehicles or railcars. Addressing the unresolved technical and integration issues associated with these program elements prior to initiating waste transportation will require a well-planned and well-integrated effort, applied over an extended time. [2]

Moreover, there is no government regulation of a number of spent nuclear fuel practices at reactor sites.[3] The NRC has not even carefully tracked or conducted a wide-scale audit that would enable the agency to know the degree to which spent fuel and assemblies may be damaged, especially where such damage has occurred during incidents which do not require (or where licensees have interpreted NRC rules to not require) formal reporting. Indeed, as the Idaho National Laboratory (INL) has reported, fuel damage incidents may happen in the reactor, during handling, or during storage in a spent fuel pool and involve radiation damage, cladding oxidation and thinning, the presence of hydrides and a number of other factors that cause changes of physical properties which may lead to a loss of function for post-reactor conditions and operations. Yet the definition of damaged fuel has changed over time. While releasing fuel fragments qualifies as a gross breach and is automatically categorized as damaged in the regulations for storage, for transportation, "it is possible for a gross breach to be categorized as undamaged, if the package can demonstrate criticality control."[4] Events that place stress on in-reactor fuel and spent fuel pool mishandling incidents have occurred over the decades at dozens of reactor sites and are identified in a variety of event and inspection reports.[5] Over the years, reports have also documented events involving problem-riddled downloading operations. A recent addition to the litany is a serious event which occurred at San Onofre Nuclear Generating Station in 2018 during transfer of fuel from pool to dry storage which left a 50 ton canister filled with spent fuel assemblies dangling 18 feet from the floor of a storage cavity unsupported but for the grace of being hinged on a metal flange.[6] This dangerous condition continued for some 45 minutes and exposed not only the reality of lax safety culture and utilization of workers untrained for the tasks assigned, but the fact that the very design of the

system facilitates metal-to-metal contact between steel storage canisters and the storage vault liner. This means that the canisters involved will be gouged and strongly calls into question their long-term integrity. Particularly troubling, is the fact that no current technology exists which can enable inspection of canister internals or enable robust assessment of the full condition of the canisters at ISFS, during transport to a CISF, during unloading at the CISF, or throughout storage at the CISF.

How can the NRC possibly promulgate assurances that radioactive gas releases will not occur during transport or decades of CISF operation, repackaging, relocation (or, more likely, continued locations at the proposed CISFs) when it cannot even fully assess the condition of the waste or the hazardous package internals?

The DEIS assessment of low-probability is further plagued by the NRC's failure to give consideration to a large number of interrelated and large risk multipliers that should be obvious to anyone who has regularly read a newspaper over the past 20 years.[7] One does not have to look to the future. These risk multipliers are already here. A short list includes: climate change, with its deliverance of increasingly extreme and unprecedented conditions; the nation's aging, deteriorated transportation infrastructure; the hazards of chemical plants, oil and gas and other heavy industrial operations (hazards which are notably congested in the ISP/WCS CISF area); and human error or malevolent action.

Fire is a risk area into which many of these risk multipliers converge. Comments submitted by the physicist Dr. Marvin Resnikoff on behalf of Radioactive Waste Management Associates point out that the NRC underestimates the accident rate for rail freight and the fire accident rate for rail freight and fails to correctly analyze the more serious consequences of a rail fire.[8] Resnikoff notes that NUREG-6672 indicates that during fire conditions, the lid bolts may stretch, allowing escape of gases and volatiles. NUREG/CR-6672 –and NUREG-2125 as well – indicate that a severe impact accident involving a speed between 90 and 120 mph, could lead to a lid opening in the transportation cask. NRC regulations consider a ½ hour all-encompassing fire. NRC's DEIS for the Holtec and WCS CISFs. NUREG-2125 considers a 3-hour hydrocarbon fire affecting just a single tank car. However a severe fire accident may well involve more than one tank car and actual cases fires have burned for 48 hours, longer and hotter than considered by the NRC.

The substantial technical challenges involved in transport of nuclear waste because of the extraordinarily tonnage of transportation casks loaded with spent fuel canisters is also detailed by Resnikoff:

In order to reduce the cost of dry storage, the nuclear industry has moved to larger casks with greater capacity. The first Holtec cask, the HI-STAR 60 (loaded weight 82 tons) held 12 PWR fuel assemblies. The HI-STAR 100 (loaded weight 140 tons) held 24 PWR fuel assemblies. The latest Holtec edition, the HI-STAR 190 XL (loaded weight 208 tons) contains 37 PWR fuel assemblies. As the capacity of Holtec casks increased, the weight of the casks increased as well. This additional weight will place a burden on the rail infrastructure. The general nationwide rail system has an axle limit of approximately 36 tons, or 143 tons for a 4-axle rail car, which is a problem since the HI-STAR 190 XL itself, without the carriage and cask restraints, weighs 208 tons. Other heavy casks, such as the Areva MP-197, face a similar predicament. While the loaded weight of the CASTOR V/21 cask (138 tons) plus carriage may exceed 143 tons, it is much lighter thatn the HI-STAR 190 XL.[9]

Aside from the substantial physical (and cost) burden upon rail tracks relocation of tens of thousands of tons over many thousands of miles will impose, there are challenges to the design of rail cars which can both accommodate the tonnage involved, and safely travel on existing US rail lines. The number of axles and travel through curves are key issues. Radioactive Waste Management Associates notes it is most concerned about fire accidents, noting that supporting documents relied upon by NRC do not model the configuration of cask sitting on a pool of fire where high flame temperatures can degrade cask seals. NRC assumes casks will be 3 feet (1 m) above a fire and relies on an unrealistic mitigation time response in which the load will be able to be moved within 10 hours.[10]

The fire issue is of particular importance because of the high level of wildfire risk threatening the Western United States and because of the duration and wide geographic area wildfires can encompass. The DEIS most surprisingly mentions "wildfires" but once, in a passing referenced to a 2017 National Oceanic and Atmospheric Administration (NOAA) report. If for no other reason, the DEIS is deficient in assessing wildfire risk to transport and CISF operations.

In effect the NRC excises safety failures, security risks, the state of infrastructure and the real-life human (and corporate) behavior, and completely discounts flaws in the regulatory system. Basically the NRC DEIS advances a world where all the things that go wrong in virtually every single major disaster that has occurred so far this century somehow would not prevail with respect to activities involving the most toxic and dangerous materials on Earth.

This is sheer nonsense.

ENDNOTES

[1] U.S. NUCLEAR WASTE TECHNICAL REVIEW BOARD (NWTRB): Bahr JM, Becker SM, Brantley SL, Croff AG, Foufoula-Georgiou E, Illangasekare T, Peddicord KL, Turinsky PJ, and Zoback ML, Preparing for Nuclear Waste Transportation: Technical Issues that Need to Be Addressed in Preparing for a Nationwide Effort to Transport spent Nuclear Fuel and High-Level Radioactive Waste, U.S. Nuclear Waste Technical Review Board report to the U.S. Congress and the Secretary of Energy, Sep 2019, p xxii. Link at: https://www.nwtrb.gov/our-work/press-releases/technical-issues-that-need-to-be-addressed-in-preparing-for-a-nationwide-effort-to-transport-spent-nuclear-fuel-and-high-level-radioactive-waste-is-subject-of-u.s.-nwtrb-report or via www.nwtrb.gov/our-work/reports. Also at: https://www.nwtrb.gov/docs/default-source/reports/nwtrb_nuclearwastetransport_508.pdf.

[2] Id at pp 32-33.

[3] STANFORD & GWU: Reset of America's Nuclear Waste Management Strategy and Policy 2018, Center for International Security and Cooperation at Stanford University and Institute for International Science & Technology Policy, Elliott School of International Affairs at George Washington University report, Oct 15, 2018, p 48. https://fsi-live.s3.us-west-1.amazonaws.com/s3fs-public/reset_report_2018_final.pdf.

[4] Petersen G, Damage Fuel Management Practices at U.S. Reactor Sites, Idaho National Laboratory report prepared for the U.S. Department of Energy, Aug 2019. https://inldigitallibrary.inl.gov/sites/sti/sti/Sort_18593.pdf.

[5] Brewer JD, Amico PJ, Cooper SE, Hendrickson SML, Preliminary, Qualitative Human Reliability Analysis For Spent Fuel handling, Sandia National Laboratories, SAIC, and U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research report prepared for U.S. Nuclear Regulatory Commission, NUREG/CR-7017; SAND2010-8464P, Feb 2012. https://www.nrc.gov/docs/ML1105/ML110590883.pdf.

For example in December 2013, while Entergy was developing its core offload plan for its Indian Point Unit 2 reactor, Entergy failed to use the then current revision of its SHUFFLEWORKS spent fuel pool configuration management program for its spent fuel pool inventory. Consequently, an already occupied spent fuel pool cell was selected as the destination for an offloaded assembly. This resulted in the fuel handling crew at the spent fuel pool, on a date in March 2014, repeatedly trying to load a fuel assembly into an already occupied cell. The pool at the time also had cloudy conditions making iit difficult for the crews to verify conditions of the individual spent fuel locations. U.S. NRC: Indian Point Power Station - NRC Integrated Inspection Report 05000247/2014002 and 05000286/2014002, U.S. Nuclear Regulatory Commission, May 9, 2014 (ADAMS Accession No ML 14132A170), May 9, 2014. https://www.nrc.gov/docs/ML1413/ML14132A170.pdf.

[6] U.S. NRC: NRC Special Inspection Report re Southern California Edison Company Spent Fuel Storage San Onofre Nuclear Generating Station (SONGS), report nos. 050-00206/2018-005, 050-00361/2018-005, 050-00362/2018-005, 072-00041/2018-001 and Notice of Violation, Nov 28, 2018. ML18332A357(1). https://www.nrc.gov/docs/ML1833/ML18332A357.pdf.

[7] A suggested reading list for the NRC before issuance of a final Environmental Impact Statement would start with the 9/11 Commission Report which famously notes “failure of imagination” as a primary cause of the terrorist attack. Final Report of the National Commission on Terrorist Attacks Upon the United States: The 9/11 Commission Report, W.W. Norton & Company, New York, London, Jul 2004. http://www.9-11commission.gov/report/911Report.pdf.

[8] Resnikoff, Marvin, PhD, Radioactive Waste Management, Comments on NRC Draft Environmental Impact Statement (DEIS) relating to ISP/WCS (with attached Comments on NRC DEIS relating to Holtec CISF, Sep 2020), Oct 2020. https://beta.regulations.gov/comment/NRC-2016-0231-0348. https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20281A521.

[9] Id.

[10] Id.