

May Ma, Office of Administration,
Mail Stop: TWFN-7-A60M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Via email to WCS_CISF_EIS@nrc.gov.

RE: Docket # NRC-2016-0231 Waste Control Specialists LLC's Consolidated Interim Spent Fuel Storage Facility Project

November 19, 2018

Dear May Ma and NRC Application Review Staff:

Public Citizen, Inc. and the Sustainable Energy and Economic Development (SEED) Coalition respectfully submit the following scoping comments regarding the license application of ISP's *WCS' Consolidated Interim Storage Facility (CISF)*. Please consider the following issues for inclusion in the environmental impact study for the above-referenced spent nuclear fuel storage facility.

We are submitting these comments on behalf of 5,500 Public Citizen members in Texas as well as 2,000 members of SEED Coalition, many of whom would be particularly affected by this proposed project, either as neighbors near the site or because they live near the rail lines that would carry this risky radioactive cargo through their communities.

Public Citizen advocates for a healthier and more equitable world by making government work for the people and by defending democracy from corporate greed. In addition to the comments included here, more than 17,697 of our members across the United States also submitted comments in 2017 and many will be submitting additional comments about Waste Control Specialists proposed high-level interim radioactive waste storage facility in Andrews County, Texas in this current round.

The Sustainable Energy and Economic Development (SEED) Coalition is a grassroots organization with over 2000 members, most of whom live in Texas. SEED Coalition advocates for clean air and clean energy, and has promoted solar and wind development in Texas, while opposing coal plants and urging their retirement. SEED Coalition participated in licensing proceedings in opposition to Comanche Peak 3 & 4 and South Texas Project 3 & 4. The organization has also raised concerns about Waste Control Specialists' low-level radioactive waste facility, including the proximity of groundwater to the pits in which radioactive waste is being disposed.

A State of Nevada Report regarding the proposed Yucca Mountain high-level radioactive waste repository project led off by stating that it "has the potential to wreak economic, social, and environmental devastation on at least 44 states, including Nevada, hundreds of major cities and thousands of communities across the country through which spent nuclear fuel (SNF) and high-

level radioactive waste (HLW) must travel.”¹ The report noted that tens of thousands of shipments of highly radioactive waste would be an “inseparable and dominant component of the federal government’s repository program “ and lamented the fact that the Secretary of Energy recommended that “Yucca Mountain be developed as a repository without full disclosure of these transportation impacts and without having assessed the implications of the program for the nation as a whole...”²

“What began in 1983 as a noble experiment that promised to place science ahead of politics, and fairness, equity, and openness above parochialism has degenerated into a technical and ethical quagmire, where facts are routinely twisted to serve predetermined ends and where “might makes right” has replaced “consultation, concurrence, and cooperation” as the guiding principle for the program. The shoddy and politically driven science, the heavy-handed federal approach, the constant changing of the rules to negate disqualifying conditions and “inconvenient” findings, and the deliberate avoidance of responsibility for considering socioeconomic impacts have created an atmosphere of severe distrust, where the already significant impacts associated with the nuclear nature of the program are further exacerbated and amplified. The result is a massive suite of negative impacts, national in scope, inextricably linked to the Yucca Mountain program, and unprecedented in the history of federal government domestic projects.”³

Unfortunately, the same politically driven science and heavy-handed federal approach are still in use today as evidenced by the ill-conceived, ill-advised proposals to store spent nuclear fuel in Texas and New Mexico. As with Yucca Mountain, the nation would be put at unprecedented risk by the thousands of shipments of high-level radioactive waste across the country that would result. At least the goal with the failed Yucca Mountain site was a permanent repository. Proposed consolidated interim storage projects wouldn’t move our nation permanent disposal. This approach could delay a viable repository, while unnecessarily risking health and safety and creating financial liability.

Public hearing opportunities have been woefully inadequate for the Waste Control Specialists (WCS) proposal. WCS and their partner, Orano, have formed a joint venture, Interim Storage Partners. Together they seek to import 40,000 tons of spent fuel from nuclear reactors around the country and store it on WCS’ existing low-level radioactive waste site in Andrews County for 40 years, or possibly 60 – 100 years, or “until a permanent repository is available.” This could mean forever.

Importing high-level radioactive waste would threaten public health, safety and financial well being. Exposure to radiation can lead to various cancers, genetic damage and birth defects. Human exposure to unshielded high-level radioactive waste is lethal. Homeowners’ insurance doesn’t cover radioactive contamination, so there are risks to property value as well. The WCS proposal and Holtec’s proposed project for nearby New Mexico should be halted immediately. Waste would travel through major cities in Texas and throughout the country in order to reach either or both sites.

Under the Nuclear Waste Policy Amendments Act of 1987, the WCS consolidated interim storage facility cannot legally operate, so the NRC should not even be considering the license

¹ <http://www.state.nv.us/nucwaste/yucca/impactreport.pdf>

² Ibid

³ ibid

application. Yet the applicant is now pushing forward with their proposal, under new corporate ownership of WCS and with a revised application.

We Don't Want Radioactive Waste. We Do Want Public Meetings.

Texans don't want dangerous high-level radioactive waste, but the NRC has failed to listen to the voices of many concerned Texans. There has not been a single public meeting on the newly revised application, submitted under new WCS ownership. The WCS proposal would result massive transport of radioactive waste across the country, but the public is being given very little opportunity to speak out.

For the original version of the application, NRC held only one Texas meeting, in Andrews, hundreds of miles away from major cities that would be impacted by rail transport of radioactive waste. One meeting was held across the border in Hobbs, New Mexico, and two were available by phone and webinar. By contrast, five in-person NRC meetings were held in New Mexico regarding Holtec's proposal. Twenty-four meetings were held for Yucca Mountain, at locations across the country.

There is strong opposition in Texas. Resolutions opposing the radioactive waste plans and transport were passed by Dallas, Bexar, Nueces, El Paso and Midland counties and the cities of San Antonio, Midland and Denton, yet the NRC has failed to host a single meeting in any of these locations, despite requests to do so and to extend deadlines for 180 days to allow for full public awareness and participation.

Inadequate Environmental Review and Emergency Plan

The inadequate WCS Environmental Report should clearly identify transportation routes that would be used across the country and thoroughly examine:

- Risks to groundwater and the nearby Ogallala Aquifer, which lies beneath eight states, providing drinking water, and water for agriculture, ranching and wildlife.
- The impacts of temperature extremes, wildfires, flooding, earthquakes, tornadoes, lightning, and shifting ground (as reported in recent Southern Methodist University studies) on radioactive waste casks and canisters.
- The environmental injustice of dumping high-level radioactive waste from around the country on the largely Hispanic West Texas / New Mexico region, where many people have limited ability to read or speak English
- The inadequacy of financial assurances, the stability of new WCS owner J.F. Lehman, an equity firm that buys and sells companies, and the ties of partner Orano (with a 51% share of the project) to the French government and other entities.
- Improved monitoring, security and worker protections are needed and should be addressed more thoroughly in the Environmental Report. Cumulative impacts of multiple nuclear facilities in the region need to be more fully examined.
- The emergency plan should include actions to be taken in response to an emergency, not just a notification structure. It appears there may not be any viable plans for action should an emergency arise.

Protect Public Health, Safety and Financial Well-Being - Deny the License

Sending nuclear reactor waste to Texas to be stored here for decades would accomplish nothing but storing the waste in an alternate location, while risking the health and security of 218 million

people within 50 miles either side of potential rail routes.⁴ It would risk financial disaster, damage to existing businesses, and contamination of land, air and waterways at the WCS site and along transport routes.

An inadequate permanent disposal site could be created since the waste would likely never get moved from consolidated interim storage to a permanent repository. This is dangerous waste that must remain isolated for a million years. Storing it for decades above ground in extreme climate conditions would not lead the nation toward the long-term isolation goal, and in fact, could impede progress.

In the interest of our public health and safety, the NRC should halt review and deny the WCS license application for Consolidated Interim Storage in Texas, as well that of the Holtec project proposed for nearby New Mexico.

Consolidated Interim “Storage” of High-Level Radioactive Waste Risks; Risk of Creating a De Facto Permanent Site

If high-level radioactive waste comes to Texas, it’s unlikely that it would ever leave. This license application should consider the possibility of an inadequate potential permanent site being created.

If high-level radioactive waste gets stored in Texas and/or New Mexico and utilities no longer have local nuclear waste liabilities, no one would lobby Congress for a permanent repository. Political pressure would evaporate. The waste would be “out of sight, out of mind” for most utilities and political leaders in other states. It would thus be unlikely that Congress would ever fund a permanent repository, a facility designed appropriately for long-term storage.

The Federal Government has attempted to find a safe site for a high-level waste repository since 1983, but has failed to do so. The NRC and predecessor agencies have been promising that the solution for radioactive waste was “at hand” since 1953.

Yucca Mountain was selected for permanent disposal but development has been halted because of inadequacy of the site to isolate waste and societal and political opposition. Yucca Mountain seeps so badly that plans for the site had to include installation expensive titanium drip shields over the waste. It is questionable whether Congress will ever fund a viable nuclear waste repository, which could cost \$100 billion or more to build. With no alternative repository being planned and Yucca Mountain halted, the NRC should evaluate the wisdom of allowing high-level radioactive waste to be transported to a consolidated interim storage site, where it could remain for decades, or “until a permanent repository is available.” This could essentially mean forever.

The casks and canisters that would be used are not designed for permanent disposal. The casks, with waste canisters inside them, would be stored outside, above-ground in extreme temperatures, exposed to earthquakes, rain and wildfires, which are becoming increasing more

⁴ Sabotage Consequences, Resnikoff and Travers, RMMA – page 4
<http://www.state.nv.us/nucwaste/news2008/pdf/rwma0810sabotage.pdf>

frequent and intense in the Permian Basin area. The high temperature experienced at the site, 113° F, exceeds the design value (101°) of some of the canisters that could be stored there. With above ground storage and exposure to the elements, the risks of degradation of the casks and canisters and water contamination are likely to increase as storage time lengthens.

Canisters may crack and release radiation over time. The Environmental Report should clarify how long casks and canisters are expected to last before there are cracks, metal fatigue, through wall cracks or other defects, including those that may result from accidents, drops, shaking the canisters in transport or shaking due to seismicity. As the cladding around the fuel rods ages, it could become thin and embrittled, making it more dangerous to store and decreasing the likelihood that it will be moved again.

The NRC has said that once there is a crack in a canister it can grow through the canister wall in about 16 years.⁵ Dr. Kris Singh, President and CEO of Holtec, a company competing for high-level radioactive waste business, has said that even a microscopic through-wall crack will release millions of curies of radionuclides into the environment and that it's not feasible to repair the cracks even if you could find them.⁶

Detailed information regarding this crucial issue is provided in a September 24, 2018 letter from Donna Gilmore of San Onofre Safety to Michael Layton, Director of the NRC Spent Fuel Division. Gilmore raises serious safety concerns, stating:

We're running out of time before these canisters have major leaks, explosions or criticalities. The NRC and nuclear industry have kicked these cans down the road for over 20 years, but we're getting to the end of that road. Since aging canisters have not and cannot be inspected for cracks or depth of cracks, let alone repaired, the fuse may be lit on many of these aging canisters, but we cannot see them.⁷

The NRC should carefully consider the important safety issues raised in this letter, which we incorporate here by reference. Key data and concepts should be included into the Environmental Report and other portions of the WCS license application.

Yucca Mountain had to be designed to isolate nuclear waste for a million years, but the WCS interim storage facility is not designed for long-term disposal. It would be woefully inadequate for permanent storage of radioactive waste that remains dangerous so far into the future. The licensing process for interim storage only accounts for the consequences of storage for a few decades, or possibly up to 100 years.

Thus the Environmental Report parameters are inadequate for a site that could become the de facto permanent site for deadly radioactive waste, and further analysis is essential. Canisters and casks are not designed to last anywhere close to a million years. There are no provisions in the application for a transfer facility at the site in which damaged or leaking canisters could be

⁵ <https://www.nrc.gov/docs/ML1425/ML14258A081.pdf> Page 4

⁶ <https://sanonofresafety.files.wordpress.com/2015/09/attachment-14-declaration-of-donna-gilmore.pdf>

⁷ <https://sanonofresafety.files.wordpress.com/2018/09/nureg-2224donnagilmorecomments2018-09-24.pdf>

repackaged. The Environmental Report should thoroughly examine the effects of long-term storage and explicitly analyze the potential problems that could result involving zirconium or other kinds of cladding, and the potential impacts, including criticality.

Since there is no permanent repository being planned, this application should analyze the possibility that there will never be a final repository, and carefully consider all enhanced standards and guidelines that should be required due to the risk of creating a de facto permanent site.

Liability Risks and Inadequate Financial Assurance

The State of Texas could get stuck with billions of dollars of clean up costs from a transportation accident, a contaminated waste facility, or having to remediate an abandoned high-level radioactive waste site.

Lack of viable financial assurance that would protect Texas

WCS proposes to use one of two methods for funding decommissioning. The Environmental Report lacks adequate detailed information about both of these possibilities.

1. **One possibility is a contract with DOE.** The license application says: Pursuant to a contract with DOE, DOE shall take legal title of the SNF prior to receipt and shall also be responsible for all costs associated with the decommissioning of the WCS CISF pursuant to 10 CFR Part 20 Subpart E at the time of license termination (SAR 13.6.2 Cost of Decommissioning)

The application should discuss the goals and minimal terms that would be involved in such a contract, in order for the public to assess whether financial assurance would be anywhere close to adequate.

2. **The other possibility is creating an external sinking fund.**

If such a fund were to be used, would there be a requirement to use cash as financial assurance? Would bonds be considered? A combination of the two? Sister company stock? WCS was previously allowed to use sister company stock as financial assurance for their low-level radioactive waste facility. This inadequate option should not be permitted, since stock values can plummet. In order to prevent liability problems, the licensee should be required to provide full financial assurance up front, not incrementally over time. An accident with a radiation release could occur sooner than expected and someone would have to pay for remediation. It should not be US taxpayers.

- WCS' and Orano have formed Interim Storage Partners (ISP). Orano, previously known as Areva, is largely owned by the French government, and it has a 51% ownership of ISP. The Environmental Report should include justification for why this could possibly be appropriate or why the NRC should even considered this proposed arrangement in light of Foreign Ownership and Control regulations.

The national security implications of a high-level radioactive waste facility having a foreign owned company with a controlling interest should be thoroughly examined. U.S. relations with France could become increasingly strained under the current

Administration. The NRC should not allow any foreign company to have a 51% share, a controlling interest, in any project on U.S. soil involving high-level radioactive waste.

- The business model has changed. Additional financial scrutiny is needed since there have been economic shortcomings for WCS and Areva in the past. J.F. Lehman & Company now owns both Waste Control Specialists and NorthStar Group Holdings, Inc., a company that plans to decommission nuclear reactors.
- NorthStar Group, in which WCS is a partner, is attempting to purchase Vermont Yankee nuclear reactor. NRC officials have approved the transfer of title, which is yet to be considered by the Vermont Public Utility Commission. There were significant questions as to whether NorthStar's financial plans were "adequate to provide reasonable assurance that sufficient funds would be available for decommissioning" and how long-term storage of spent nuclear fuel stored at Vermont Yankee would be funded. "That's no small expense: NorthStar estimates fuel costs at \$287.8 million through 2052."⁸
- WCS has made no commitment to set aside any given amount of financial assurance/decommissioning funds. They should be required to do so and explain how it would be accomplished under permissible terms. Otherwise, there is no guarantee of adequate funds for decommissioning. The company plans to negotiate a contract with DOE, leaving it to the federal government to clean up. No minimal terms for this contract are provided in the NRC license application. If no deal is struck, if funds turned out to be insufficient or if the federal government failed to pay, Texas and other states with transport routes could get burdened with a disastrous mess and shouldering potentially exorbitant clean up costs.
- Before any licensing decision is made, a more comprehensive and credible financial assurance and decommissioning plan should be developed based on risks due to contamination, aging, weathering and abandonment. It should also address the new business model, which may not be backed by federal guarantees. There should be analysis of both WCS and Orano's assets and access to capital and a full examination of decommissioning revenues, and the extent to which these revenues could be used for financial assurance and decommissioning.
- The Environmental Report should acknowledge and discuss the fact that the Price-Anderson Act does not cover storage activity at a private sector Consolidated Interim Storage Facility. It could potentially cover some, but not all, transportation scenarios. The Price-Anderson funds that would available would not be nearly enough to cover a significant radiation release, which should also be discussed in depth.
- WCS' license application cites EPRI decommissioning estimates for a high-level radioactive waste site, of \$12.65 million for 5,0000 tons, without commenting further as

⁸ <https://vtdigger.org/2018/05/24/northstar-makes-new-promises-in-vermont-yankee-sales-deal/>

to whether they believe these estimates to be credible. If proportionate, costs would be \$101 million for 40,000 tons. The Environmental Report should clarify as to whether WCS agrees with these unrealistically low numbers and if so, why.

- By contrast, a financial assurance package in excess of \$250 million was secured for decommissioning the Vermont Yankee plant, a single nuclear reactor. The state of Vermont sought protections against “project risks and cost overruns” and to “ensure the complete cleanup and restoration of the reactor site.”⁹
- The decommissioning cost estimates suggested in the license application pale in comparison to actual multi-billion dollar clean up costs of existing radioactive waste sites. Congress seldom adequately or timely funds remediation for such sites. The companies that would profit from radioactive waste storage may be long gone when it comes time for clean up.
 - **The Hanford Nuclear Reservation** in Washington State is considered America’s most contaminated nuclear site.¹⁰ In 2016, price tag for remaining environmental cleanup of the Hanford nuclear reservation comes to an estimated \$107.7 billion. The estimate released by the Department of Energy, EPA and the state of Washington included cleanup work planned for completion by 2060, plus some post-cleanup oversight.¹¹
 - **The Waste Isolation Pilot Plant (WIPP)** After less than 15 years of operation the site had a fire and soon afterwards an explosion. The site was closed for 3 years and remediation costs were estimated to reach \$2 billion.¹²
 - **The Pantex Plant** is the primary United States nuclear weapons assembly and disassembly facility. Since 2000, \$171 million in compensation and medical bills has been disbursed to more than 1,300 workers and families since the energy employees’ compensation program began.¹³ In 2009, soil and groundwater contamination clean up was projected to cost over \$120 million.¹⁴
 - **Fernald uranium production facility** is the site of one of the largest environmental cleanup operations undertaken in U.S. history. It was added to the U.S. EPA’s

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- ⁹ <https://publicservice.vermont.gov/announcements/department-files-mou-entergynorthstar-case>

¹⁰ <https://www.bbc.com/news/magazine-26658719>

¹¹ <https://www.tri-cityherald.com/news/local/hanford/article61912837.html>

¹² <http://www.latimes.com/nation/la-na-new-mexico-nuclear-dump-20160819-snap-story.html>

¹³ <http://www.star-telegram.com/news/state/texas/article49500030.html>

¹⁴ <https://www.mysanantonio.com/news/environment/article/Amarillo-weapons-plant-to-clean-up-soil-844339.php>

National Priorities List of Superfund Sites most in need of cleanup in 1989. The cleanup was completed after 28 years, at a cost of \$4.4 billion.¹⁵

- **Savannah River Site (SRS)** produced tritium, plutonium and other special nuclear materials for national defense and the space program. Past disposal practices caused site contamination. Cleanup efforts have been underway since the 1980s. Site cleanup completion is currently scheduled for 2065.¹⁶ The clean up cost estimate has increased to \$17 billion.¹⁷
- **Beatty, Nevada**, has the nation's first federally licensed low-level radioactive waste dump, which opened in 1962 and closed in 1992. The State of Nevada had to take over ownership and oversight of this site. In 2015, an underground fire led to violent eruptions that spewed hazardous debris 60 feet into the air. The cost to ensure that there is no repeat of the accident is expected to exceed the \$9 million that Nevada accepted when it inherited the site.¹⁸ The radioactive waste dump was troubled over the years by leaky shipments and oversight so lax that employees took contaminated tools and building materials home, according to state and federal records.¹⁹
- **West Valley Demonstration Project** is a nuclear waste remediation project focusing on the cleanup and containment of radioactive waste left behind after the abandonment of a commercial nuclear fuel reprocessing plant in 1980. Despite over 30 years of cleanup efforts and billions of dollars having been spent at the site, the property has been described as New York's most toxic location in 2013.²⁰
- The decommissioning plans suggested in the WCS license application are also unrealistic because they consider clean up of a site with wastes that have recently been removed from a reactor, not for wastes stored in canisters or casks that have been degraded by transportation, accidents, weather or aging. Realistic analysis that covers various potential scenarios is needed to ensure accurate decommissioning costs.
- The license application assumes that 20% of the site could become contaminated and requiring remediation. What does this mean? Clarification of this vague statement and further analysis should be provided. Does this mean contamination of 20% of the canisters or casks? Or 20% of the site itself? Does this include the low-level radioactive waste area? The pad on which high-level radioactive waste would be stored?

¹⁵ <http://www.fluor.com/projects/fernald-environmental-remediation>

¹⁶ <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0403485>

¹⁷ https://www.postandcourier.com/the-remaining-mission-of-the-savannah-river-site-clean-up/article_186a2452-3039-11e7-83da-47bb41f904b2.html

¹⁸ <https://www.reviewjournal.com/local/local-nevada/a-year-after-fiery-accident-at-radioactive-waste-dump-in-nevada-the-meter-is-running-on-a-fix/>

¹⁹ <https://www.theguardian.com/us-news/2015/oct/25/radioactive-waste-dump-fire-reveals-nevada-troubled-past>

²⁰ https://en.wikipedia.org/wiki/West_Valley_Demonstration_Project

Is there really such thing as a 20% contaminated site? Wouldn't this effectively equate to a 100% contaminated site, one that might no longer be safe for workers? If workers were unable to access all or portions of the site, remediation could become difficult or even impossible. Are there robotics available that could be used to remediate a contaminated consolidated interim storage facility? Where and how would such decontamination take place, and at what expense?

The Presence of Water and Risks to Aquifers Must Be Analyzed

TCEQ's professional staff in the Radioactive Materials Division reviewed the original low-level radioactive waste application and unanimously urged the Commission to deny the license because of water incursion risks. An Interoffice Memorandum on August 14, 2007, relayed their conclusions to TCEQ Commissioners:

- Groundwater is likely to intrude into the proposed disposal units and contact the waste from either or both of two water tables near the proposed facility. The Applicant has failed to demonstrate compliance with 30 TAC §336.728(f), which states, "The disposal site shall provide sufficient depth to the water table so that groundwater, perennial or otherwise, shall not intrude into the waste."
- The Applicant has failed to successfully use numerical modeling to predict the future location of one water table that is expected to intrude into radioactive waste. This constitutes a failure to characterize the proposed site as required by 30 TAC §336.728(a) which states the proposed disposal site "...be capable of being characterized, modeled, analyzed, and monitored." Moreover, the Applicant's failure to model the future location of the water table violates 30 TAC §336.709(1), which requires analysis of future site conditions.

Monitoring well data in one quarterly report by WCS to TCEQ has shown showed the presence of water in 40% of the monitoring wells. Ongoing pumping is used to remove water at the Compact and Federal facilities of the WCS site.

The Ogallala Aquifer, which provides water for eight states, is very near the WCS site. Risks of water contamination and the extent to which it could spread over time should be considered in the Environmental Report. Texas Water Development Board maps previously showed water underneath the WCS site location and previous studies of the site, once known as the Flying W Ranch, should be analyzed and the data incorporated into the Environmental Report. This includes a report formerly prepared for the Andrews Industrial Foundation.

Texas Does Not Consent to High-Level Radioactive Waste Storage

The WCS license application should acknowledge the significant opposition to the proposal for high-level radioactive waste storage in Texas or New Mexico.

Opposition to the WCS project far exceeds support, and NRC should hear these voices.

- Dallas, Bexar, Midland, El Paso and Nueces counties and the cities of San Antonio, Denton and Midland have passed resolutions expressing opposition.
- More than 16,000 people have submitted comments opposing the WCS license.
- At least 500 of those comments came from people who live in the Andrews area

- Collectively, these resolutions represent 5,474,037 people based on 2017-2018 population data from SuburbanStats.org.²¹
- While radioactive waste opposition is clearly not a partisan issue, it is also of note that the Texas Democratic Party Platform, 2018 – 2020 includes opposition to consolidated interim storage and transport of high-level radioactive waste.²² In the 2016 election, Democrats cast 43.2% of the votes (3,877,868).

None of the criteria used by WCS to proclaim support for their project meet any reasonable definition of consent. They include:

- A March 2014 study by TCEQ, which was far from a glowing endorsement of the plan, pointing out sabotage risks and the possibility of creating a de facto permanent site. This report was presumed to back up former Governor Rick Perry’s support for the WCS project. Governor Greg Abbott has not voiced support for WCS’ proposal.
- A resolution passed by Andrews County in January 2015, without any public comment, at a hearing attended only by WCS.
- A 2014 resolution by the Texas Radiation Advisory Board, which only has an advisory role in state government.

Department of Energy officials have portrayed the resolution by Andrews County as evidence that Texas was giving consent to high-level radioactive waste storage site, which is false. Andrews County lacks any legal authority to consent to the WCS proposal on behalf of the state. The reality is that there was no citizen input into the decision by five people and the county was looking at potential financial gain as opposed to health and safety concerns of the community. The desire that many community members hold of a safe future for their families and for local businesses was disregarded, although many spoke to NRC about their concerns.

On January 20, 2015, Andrews County Commissioners passed a resolution supporting Waste Control Specialists’ application for a consolidated interim high-level waste storage site. There had some coverage in the local newspaper of WCS’ proposal, but there appears to have been little, if any, effort to reach out to citizens about the opportunity to weigh in about high-level radioactive waste storage plans at the Commissioners Court. Not a single member of

²¹ <https://suburbanstats.org/population/how-many-people-live-in-texas> (The population of the cities of San Antonio and Midland are assumed to be included in the county population)

Dallas County	2,368,139
Midland County	136,872
Nueces County	340,223
Bexar County	1,714,773
El Paso County	800,647
City of Denton	113,383
	5,474,037

²² <https://www.txdemocrats.org/our-party/texas-democratic-party-platform> - in the Environmental Protection, Regulation and Enforcement section

the public was present at the only Commissioners Court public hearing. Only WCS was present. The resolution was approved with no community input.

The Environmental Report should note this lack of public input. The process failed to constitute informed local consent, a serious failure considering the magnitude of the decision and the impacts it could have for Andrews County, the State of Texas and the nation as a whole. Many Andrews residents didn't know what was proposed until after the County resolution was passed. Some say that a vote should have been held and that they would have voted against the project. Testimony at 2017 NRC meetings in Andrews, Texas and Hobbs, New Mexico was dominated by deeply concerned community members who said that they don't want radioactive waste nearby.



The volume of low-level waste arriving at WCS recently has been less than originally projected. As a result, revenues have been down, including the 5% that goes to Andrews County. County dependence on revenue generated at the site may have unduly influenced decisions made regarding storage of high-level radioactive waste.

The Andrews County's resolution favoring storage of high-level radioactive waste has no legal or regulatory basis. The Blue Ribbon Commission on America's Nuclear Future report in 2012 recommended a consent-based process, but since the recommendation was never codified or adopted by regulation the definition of consent was never finalized. The Environmental Report should acknowledge that there is no legal basis for the claim that Andrews County's resolution constitutes consent.

In fact, a fair definition of consent would give weight to the nearest and most affected community. In this case that would be Eunice, New Mexico, located about 4 miles west of the WCS site, and not Andrews, Texas. Eunice is the nearest governmental body, and the Mayor has publicly expressed opposition to the site and raised concerns about transportation. The WCS license application indicates that all rail transport to WCS would come through Eunice. True consent would include a vote for communities at risk because they are close to the proposed consolidated interim storage project or along transport routes.

Eunice, New Mexico, Mayor Johnnie "Matt" White wrote to Public Citizen member Michael Trost, saying:

We have opposed the nuclear waste dump as it is so close to the city. It is only 4 miles and we are uncomfortable with the location. Also the waste material will be transported

though the city and my council is very concerned. We have attended the meeting (in Hobbs) and expressed our concerns.

Transportation Risks Higher than NRC Acknowledges

Review of the WCS and Holtec license applications should be halted. No licenses should be issued until completion of the transportation route study that the U.S. Department of Transportation plans to release in 2022 and until the public has had adequate response time. Once route information is determined, the NRC should make the information available and host public meetings in cities likely to be on transport routes.

The Environmental Report fails to provide adequate route information. It should be revised to do so. There is no way the public can fully assess the environmental, health, safety and environmental justice impacts of transportation without full information regarding how the waste would get to West Texas. People are left to make educated guesses by examining major rail lines and routes that would have been used to transport spent nuclear fuel to Yucca Mountain.

- An estimated 4,000 rail cars would move across the nation to Texas to the WCS site, in a process lasting over 20 years, threatening the health of communities and the environment.
- A 2002 study by Radioactive Waste Management Associates for the State of Nevada used RADTRAN and RISKIND computer models to reexamine the truck and rail accident estimates for Yucca Mountain. They found that sabotage impacts would be at least ten times greater than DOE Estimates. They found that remediation of a rail accident involving a radiation release could cost \$189 to \$270 billion, data that should be included in the Environmental Report.

For the most economically severe rail accident in an urban area under weighted average meteorological conditions, our RADTRAN 5 analysis has estimated the associated costs to be on the order of \$270 billion for 10-year-cooled fuel and \$145 billion for 25.9-year-cooled fuel, present-day value. For the most economically severe truck accident, our RADTRAN 5 analysis has estimated the associated costs to be on the order of \$36.6 billion for 10-year-cooled fuel and \$20.1 billion for 25.9-year-cooled fuel. We need to underline the fact that the economic costs could be 3 to 4 times greater if one assumed a realistic urban population density.²³

- RWMA examined accident health consequences analyses with RISKIND and concluded that the number of expected latent cancer fatalities could be up to 40 times higher than DOE estimates. They found that if radioactive waste was involved in a transportation accident similar to the Baltimore rail tunnel fire that there could be 1,580 latest cancer fatalities over one year, and 31,800 latent cancer fatalities over 50 years. The DOE had estimated only 31 latent cancer fatalities for a severe rail accident, and that the waste would have already cooled 26 years.

RWMA concluded that the Baltimore accident conditions were severe enough to have caused the largest release considered in the DEIS for the Yucca Mountain facility. The contamination resulting from the release would cause a policy-maker's nightmare. On the one hand, the cost of cleanup could be \$13.7 Billion. On the other hand, failure to clean up could result in up to 1,580 latent cancer fatalities over one year, and up to 31,800 latent cancer fatalities over 50 years. The potential health and economic

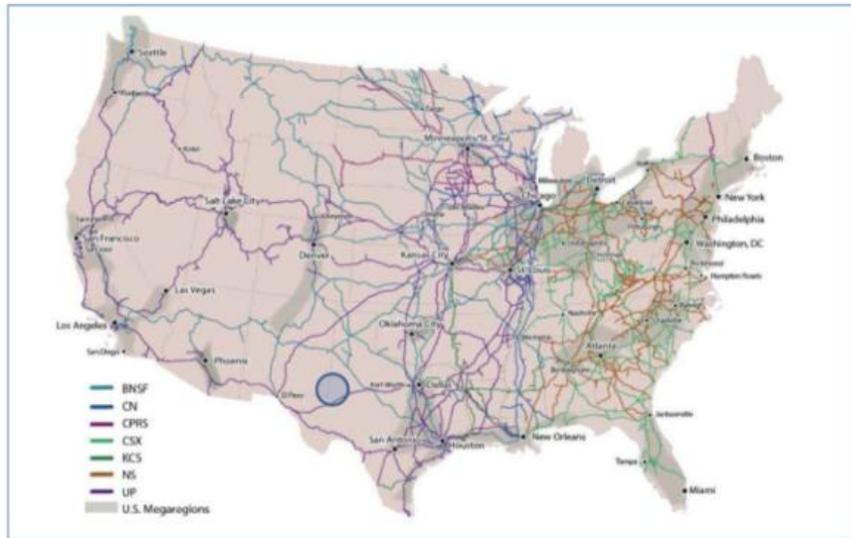
²³ <http://www.state.nv.us/nucwaste/yucca/impactreport.pdf> Page 43 and 36

consequences presented give some indication of the tradeoff likely to take place between preventing future health effects and expending a large amount of money to properly remediate an area.²⁴

- Each rail car would carry as much plutonium as was in the atomic bomb dropped over Nagasaki. The Environmental Report should include information as to the content of spent nuclear fuel canisters, including the percentage of various radionuclides including, but not limited to plutonium, uranium, cesium, and americium and their half-lives. Data for high-burnup fuel should be included.
- The Environmental Reports fail to explain how very heavy loads trainloads would be handled, since loaded rail cars generally weigh close to 213 tons, significantly exceeding the 143 tons/car the rails are designed to handle. The term “shipment” should be defined. Information is needed regarding number of rail cars that would carry spent nuclear fuel in a given train, whether dedicated trains would be used and what requirements would ensure this, what buffer cars and security would be used and what regulations would apply, and the speed of such trains would travel in order to reduce transport risks, as well as how such speed limits, if they exist, would be enforced.
- Transportation routes have not been designated. However, DOT rules and guidance would require Class One lines for rail transport of spent nuclear fuel. The Environmental Report should clarify anticipated rail routes, as well as the extent to which barges and trucks would also be used and in what locations. WCS states a preference in the license application for using Union Pacific rail lines, but they have in no way limited the routes they might use. It appears that:
 - 90% of the waste would come from reactors east of the Mississippi River.
 - It appears that high-level radioactive waste would likely be shipped to WCS on UP lines running along 1-10, 1-20, I -30, and then westward through Dallas/Ft. Worth and heading north from Monahans to the WCS site.

This map from WCS’ application appears to indicate that radioactive waste could be transported on numerous rail lines throughout the entire United States, but further discussion of the map and its significance should be included so that the public can know if this is true. A map should be included that overlays locations of reactors and decommissioned sites from which waste might originate and the rail lines. Maps should be provided that indicate routes for waste originating from all specific sites from which WCS could potentially receive spent nuclear fuel.

²⁴ Ibid. Page 42 and 36.



<p>Title:</p> <p style="text-align: center;">RAIL LINES MAP</p>	<p>Figure:</p> <p style="text-align: center;">2.2-4</p>	<p>Date:</p> <p>11/16/2015</p> <p>Scale:</p> <p>NONE</p>	 <p style="text-align: center;">ANDREWS, TEXAS</p>
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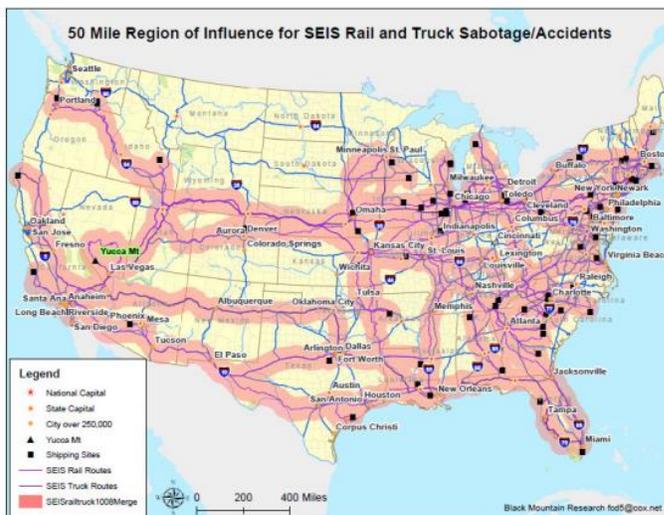


Figure 2. Potential National Rail and Highway Routes and 50-Mile Radiological Region of Influence (ROI) for Sabotage and Accidents

The Class One rail lines that could potentially haul this extremely heavy cargo run through the center of many of our largest cities. An analysis of spent nuclear fuel that would have gone to Yucca Mountain found that 218 million people live within the region of influence, 50 miles on either side of rail lines that would have been used to transport this dangerous waste.

<http://www.state.nv.us/nucwaste/news/2008/pdf/rwma0810sabotage.pdf>

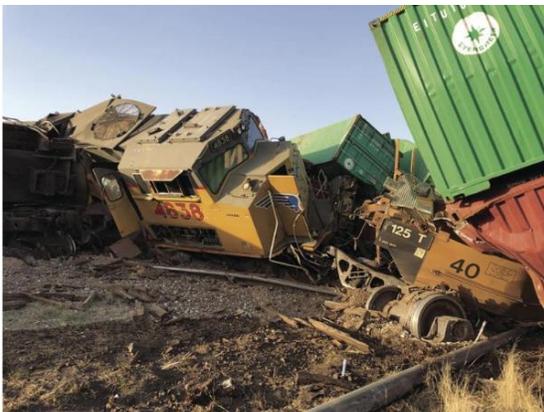
The WCS plan would also endanger millions of people across the country. In Texas likely routes would go through major cities including Dallas/ Ft. Worth, Houston, San Antonio, Midland and El Paso. People along within a 50-mile region of influence along these rail lines should be considered affected parties since they are at risk for accidents and sabotage.

The concerns of people that live along likely transport routes must be heard in public meetings and the consent of governing bodies along transport routes must be obtained.

The NRC estimated that 10,000 rail shipments would be needed to ship waste to Yucca Mountain if transport was mainly by rail, and based on projected rate, at least one accident was anticipated.²⁵ The accident rates could be similar, or potentially higher for the WCS consolidated interim storage proposal.

There have been numerous train accidents and derailments in West Texas and New Mexico, and the following data should be considered and included in the Environmental Report. A Ten Year Accident/ Incident Overview for Texas Railroads, using data from the Federal Railroad Administration, Office of Safety Analysis shows that from FY2009 to FY2018, there were 8034 rail accidents/ incidents, with a total of 570 fatalities. Human factors caused 784 train accidents that were not at grade crossings, while 752 were track caused; 168 were collisions and 1550 were derailments. There were 10,225 cars that carried hazardous materials; with 1,24 hazmat cars damaged or derailed and 16 hazmat releases. There were 445 accidents with reportable damage over \$100,000, 133 in which damage was over \$500,000, and 58 with damage over \$1 million. Incidents at public crossings totaled 1854 and highway – rail accidents claimed 206 lives.

Union Pacific Railroad had 5062 accidents in Texas in this timeframe. The Texas and New Mexico Railroad (TNMR), which would be used for transport between Monahans, Texas and Eunice, NM, had 10 accidents.²⁶



Photos Courtesy of the Ward County Daily
A train vs. train collision at the rail road crossing of Eva and Sealy Avenue Wednesday in Monahans. Further details on the accident are pending following an investigation.

On April 18, 2018 the Ward County Daily reported on a train versus train collision that happened in Monahans, Texas, in a crash that took out more than a dozen cars.

https://www.oaoa.com/news/traffic_transportation/vehicle_accidents/article_f7e3395e-435a-11e8-bbe5-5b37334a3c03.html

²⁵ TCEQ Assessment of Texas' High Level Radioactive Waste Storage Options, <https://www.documentcloud.org/documents/1100389-tceq-assessment-of-texas-high-level-radioactive.html> Originally based on DOE's FEIS for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, Feb. 2002

²⁶ <https://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Query/TenYearAccidentIncidentOverview.aspx>



In June 2016, in Panhandle, Texas, a train going 65 mph failed to stop at a signal, and collided head on with another freight train. Three people died. One train had 56 loaded cars and the other had 54 cars. A huge fireball was triggered, cars derailed and debris scattered 400 yards from the site. BNSF estimated damaged at \$16 million. The fire burned for twelve hours.

<https://www.nbcdfw.com/news/local/Report-Train-Didnt-Heed-Stop-Signal-in-Deadly-Texas-Crash-386849071.html>

Risk of Terrorist Attacks on Radioactive Waste Transported through Texas' Major Cities

Shipping high-level radioactive waste through population centers would create attractive targets for terrorists. If terrorists were to attack, they'd be most likely to do so in a highly populated city like San Antonio, which has numerous military bases, or Houston, which is home to the nation's largest petrochemical complex and second largest port, or Dallas/Ft. Worth, which have the some of the nation's most congested rail hubs.²⁷

A Texas Commission on Environmental Quality study discussed the risk of a terrorist attack on radioactive waste during transport or at the site as a significant threat.²⁸ The report cited a study entitled "Centralized Interim Storage of Nuclear Waste and a National Interim Storage Strategy," which included this reference:

With the presence of any potentially dangerous material, it is important to anticipate the possibility of malicious attack or theft. Due to the deliberate nature of such security threats, one cannot reasonably assign them a probability and calculate an expected cost. Because these attacks often target human lives and aim to create terror, it is important to actively safeguard against the negative consequences of such an attack. Therefore, for

²⁷ http://gov.texas.gov/files/ecodev/Logistics_Report.pdf

²⁸ TCEQ 'Assessment of Texas' High Level Radioactive Waste Storage Options' - <https://www.documentcloud.org/documents/1100389-tceq-assessment-of-texas-high-level-radioactive.html>

interim spent fuel storage, spent fuel must be secured against malicious attack and its consequences at all times. For radioactive materials such as spent fuel, security threats fall into two general categories: sabotage and theft. In the former, the intent is to damage shielding and potentially disperse radioactive material, therefore exposing the environment and population to radiation. The latter involves stealing the material for future use in a radiological dispersal device or “dirty bomb,” or a potential nuclear device. In addition, each of these types of events may occur during storage, transportation, or fuel transfer.²⁹

The transportation of spent fuel presents unique security vulnerabilities and challenges. Differences in risk between storage and transportation are due to a reduced number of security personnel guarding transport, fewer engineered barriers during transport, and potential proximity of transportation routes to population centers. Each of these factors make spent fuel in transit a more appealing and accessible target to attackers, thus increasing risk.³⁰

In 2007 the National Academies (NAS) Committee on Transportation of Radioactive Waste reported that “Malevolent acts against spent fuel and high-level waste shipments are a major technical and societal concern.”³¹ They urged an independent examination of security before spent nuclear fuel shipment to a repository.

Sabotage events similar to those evaluated by DOE for Yucca Mountain, in which the casks are penetrated but not perforated, could range from *\$3.5 billion to \$45.8 billion* (in 2008 \$) according to Radioactive Waste Management Associates. Transportation sabotage events in which the casks are fully perforated could result in cleanup costs of *\$463 billion to \$648 billion*.

A terrorist strike on a shipment of radioactive waste could create an immediate health and safety hazard to the surrounding population and resulting radioactive contamination caused could render large areas of land uninhabitable for generations. This significant risk to human health and safety that must be accounted for and fully addressed in the Environmental Report.

Drones and Armor-Piercing Weaponry.

The Environmental Report should include updated analysis of transportation risks, including the potential impacts of drones being used by terrorists in attacks on radioactive waste shipments. Drones are a dangerous new threat to our troops abroad, as was recently seen in battles with terrorists in Mosul, Iraq.³² A recent report³³ detailed the growing use of drones as terrorist tools.

A new generation of armor-piercing weaponry has been developed since then and an estimated 48% of all weapons used in Iraq and Afghanistan have disappeared. Due to extensive arms

²⁹ Petroski, Robert, “Centralized Interim Storage of Nuclear Waste and a National Interim Storage Strategy,” Journal of Engineering and Public Policy, vol. 9, (2005) - <http://www.wise-intern.org/journal/2005/petroski.pdf> Page 24.

³⁰ <http://www.wise-intern.org/journal/2005/petroski.pdf>, page 26

³¹ <http://www.state.nv.us/nucwaste/news2007/pdf/wm07ymtrans.pdf> Page 2 and

³² https://www.washingtonpost.com/world/national-security/use-of-weaponized-drones-by-isis-spurs-terrorism-fears/2017/02/21/9d83d51e-f382-11e6-8d72-263470bf0401_story.html?utm_term=.290f6b7d82e4

³³ www.memri.org/reports/decade-jihadi-organizations-use-drones---early-experiments-hizbullah-hamas-and-al-qaeda

trafficking, no one can say where all these military weapons are today. Drones now carry warheads. No NRC analysis has been done of the impacts that could occur. Experts say that the thin canisters can be pierced.

Cask safety tests are outdated and inadequate

The NRC website says that spent fuel transport packages must meet certain conditions.

To show that it can withstand accident conditions, a package must pass impact, puncture, fire and water immersion tests. Transportation packages must survive these tests in sequence, including a 30-foot drop onto a rigid surface followed by a fully-engulfing fire of 1475 degrees Fahrenheit for 30 minutes. These very severe tests equate to the package hitting a concrete highway overpass at high speed, and being involved in a severe and long-lasting fire. The test sequence encompasses more than 99 percent of vehicle accidents.³⁴

However, real world accidents have exceeded scenarios studied by the NRC. Most of the canister safety analysis was done prior to 9/11. Many of the tests were simulations, not full-scale model testing. Artificial limits were set which have already been exceeded in the real world. One test assumed that the radioactive waste transport package on a train hitting an immovable object at 60 mph would be unharmed, but in 2016 there was a 65 mph head-on train collision in Panhandle, Texas. The force of the oncoming train magnified the impact and the impact was greater than the test scenario, where a train collides at 60 mph into an immovable barrier.³⁵

The Baltimore rail tunnel fire also significantly exceeded test conditions. “RWMA concluded that the Baltimore rail tunnel fire burned for three days with temperatures as high as 1500 degrees Fahrenheit, creating a Category 6 accident fire environment sufficient to cause a breach of the cask and a significant release of radiocesium and other radionuclides.”³⁶

In the real world, firefighting equipment and personnel may not always be close at hand when and where they’re needed. Scott Palmer, chairman of the Oregon State Legislative Board of the Brotherhood of Locomotive Engineers and Trainmen, testified on July 19, 2018 at a New Mexico Radioactive and Hazardous Waste Committee hearing. He said that although fire suppression equipment is available, rail accidents often occur at locations hours away from that equipment.³⁷

Environmental Justice Concerns

The proposed site and the transport routes in New Mexico are located in predominantly low income communities of color, environmental justice communities. WCS has not acted sufficiently to address or even document the disproportionate effect that this project would have on these vulnerable populations. Furthermore, the public engagement process has been discriminatory toward certain communities, particularly the non-English speaking population,

³⁴ <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/transport-spenfuel-radiomats-bg.html#safety>

³⁵ NTSB Collision of BNSF Eastbound Train S-LACLPC1- 26K and BNSF Westbound Train Q-CHISBD6-27L, Panhandle, Texas - <https://www.nts.gov/investigations/AccidentReports/Reports/DCA16FR008-PreliminaryReport.pdf>

³⁶ <http://www.state.nv.us/nucwaste/yucca/impactreport.pdf> Page 38.

³⁷ Presentation provided to committee at July 19, 2018 hearing - <https://www.nmlegis.gov/handouts/RHMC%20071918%20Item%202%20SNF%20Transportation%20Safety%20and%20Security%20Concerns.pdf>

especially since the WCS application documents are not available in Spanish. Various federal laws and executive orders require the NRC to document the potential effects of this project on environmental justice communities and seek to limit the impact of a proposed site on these communities.

Public Citizen used the EPA Environmental Justice screening tool EJSCREEN to conduct an analysis of urban rail transport routes proposed for this project. (See attachments.)

Transportation of spent nuclear fuel is a major environmental justice issue, since it would likely come by rail through many communities. 79% of the people living within half a mile of the railroad tracks going through urban areas are minorities, 69% are Hispanic, and 57% of those families primarily speak Spanish at home. Of that group, 60% don't speak English well. The documents for this proposed license are not available in Spanish as they should be.

The following routes were analyzed
The UP rail line through southern Houston
The UP line through San Antonio
The UP line from El Paso to Monahans
The UP line from Midland to Monahans

The TNMR line from Monahans to Eunice, NM

The attached comments include a summary of contentions submitted by attorney Terry Lodge on behalf of Public Citizen, SEED Coalition, Leona Morgan and other organizations. Please consider the summary and the full contentions filed on November 13, 2018 as part of these scoping comments. **Also attached are... (EJ maps)**

This application should be dismissed for all the many reasons discussed. Processing an interim waste storage application is illegal until such time as a final repository has been approved or changes are made in federal law. The plan to ship high-level radioactive waste to Texas and store it for decades imperils the health and safety of the people of Texas, creates financial risks and fails to move the nation toward the goal of a permanent repository. Review of the applications for the WCS project in Texas and the Holtec project in nearby New Mexico should be halted and the licenses denied.

Adrian Shelley, Director of Public Citizen's Texas Office

Respectfully Submitted,

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