

SUMMARY OF CONTENTIONS FILED BY DON'T WASTE MICHIGAN, CITIZENS' ENVIRONMENTAL COALITION, CITIZENS FOR ALTERNATIVES TO CHEMICAL CONTAMINATION, NUCLEAR ENERGY INFORMATION SERVICE, PUBLIC CITIZEN, INC., SAN LUIS OBISPO MOTHERS FOR PEACE, SUSTAINABLE ENERGY AND ECONOMIC DEVELOPMENT COALITION AND LEONA MORGAN IN OPPOSITION TO NRC LICENSING OF INTERIM STORAGE PARTNERS/ WASTE CONTROL SPECIALISTS' CONSOLIDATED INTERIM STORAGE FACILITY

Contention 1: NEPA Analysis of Transportation of Spent Nuclear Fuel and Greater Than Class C Wastes Was Excluded from the Application and Comprises Unlawful Segmentation of the Project

ISP states in the Application that “Transportation of the spent nuclear fuel shipping casks from the originating commercial nuclear reactor to the CISF. . . is not part of this License Application.” The exclusion from the ER—and by implication, from the EIS--of details and environmental impacts of a planned 20-year shipping campaign involving at least 3,000 deliveries of SNF and GTCC waste to ISP violates NEPA requirements that the transportation and storage aspects of the ISP plan be evaluated as a single, integrated project.

The Nuclear Regulatory Commissions says that “For transportation of radioactive material from a nuclear power plant site, the affected environment includes all rural, suburban, and urban populations living along the transportation routes within range of exposure to radiation emitted from the packaged material during normal transportation activities or that could be exposed in the unlikely event of a severe accident involving a release of radioactive material. The affected environment also includes people in vehicles on the same transportation route, as well as people at truck stops and workers who are involved with the transportation activities.”

Most main rail lines across the U.S. will be in play to deliver the SNF to WCS. More than 200,000,000 people live within 50 miles of major rail lines that will see thousands of rail shipments to west Texas. Fifty (50) miles is the distance the NRC predicts radioactive contamination could travel in the event of a serious accident causing a radiation leak from a spent fuel canister.

The potential for hundreds of thousands of people to be in the path of danger from a major spill is not acknowledged or discussed in WCS's version of the environmental impact statement.

Contention 2: ISP's 'Start Clean/Stay Clean' Policy Cherry-Picks Waste For Storage and Contradicts the Project's Purpose And Need Statement

WCS justifies putting hundreds of millions of Americans at risk of transportation accidents for WCS mere because removing spent fuel from commercial reactor sites in other states will allow those sites to be returned to greenfield status.

WCS will follow a “start clean/stay clean” management philosophy, based on the naive idea that once the spent fuel storage canisters are sealed by welding at the originating nuclear

power plants to preclude any radiation leakage, they will remain that way.

WCS will decide which canisters it will accept for storage by inspections at the reactor sites. This selection process may leave dozens, hundreds or even thousands of canisters with leaks or structural problems at reactor sites. WCS's refusal to accept all canisters at a site will keep the sites from being reused. Reducing the numbers of canisters stored at nuclear plant sites also increases the likelihood that utility companies will end active security arrangements to oversee them, raising the risks of vandalism, sabotage or terrorist attacks on the fuel left behind.

Contention No. 3: The Project Has Inadequate Assurances of Financing

ISP/WCS cannot provide adequate assurances that it has or can get the necessary funds to cover the costs of construction, operation, maintenance and decommissioning of the facility other than directly from the Federal Government in an arrangement which Congress has yet to approve.

ISP/WCS insists that the U.S. Department of Energy must take title and possession of the fuel in order to make the taxpayers the insurance company, in the event of accident or terrorist attack on the spent fuel shipments to Texas. The company also states that the only way it will begin storing spent fuel in west Texas is if DOE provides 100% of the funding for the facility to be shut down, cleaned up and all waste hauled away at taxpayer expense after the planned 100 year operation by WCS.

ISP's lack of insurance coverage – unless it is provided by the taxpayers -- also undermines its claims of fiscal capability.

Contention 4: Low-Level Radioactive Waste Volumes And Repackaging Requirements Are Considerably Underestimated

The ISP Environmental Report significantly underestimates the volume of low-level radioactive waste (“LLRW”) that will be generated by at WCS. ISP fails to count thousands of metal canisters, irradiated concrete and other materials toward the gross total volumes of LLRW.

WCS predicts that “only very small quantities of solid LLRW are expected to be generated at the CISF.

The U.S. Department of Energy is going to require all spent nuclear fuel delivered for permanent disposal in a geological repository to be packaged into as many as 80,000 small canisters. The design and dimensions have not yet been worked out. WCS likely will have to unload hundreds or thousands of large, non-uniform transport casks and canisters and move the dangerous spent fuel into smaller uniformly-sized, multipurpose transport, aging and disposal (“TAD”) canisters bound for the geological repository.

The fuel bundles from different reactor types vary greatly in thermal content and as to whether or not they are now considered “high burnup fuel” (“HBF”). Presently there is no agreement on the size nor other features of the TAD canisters to achieve the DOE's efficient disposal requirements.

In order to unload the large canisters and move the SNF into small ones, WCS must have a dry transfer system (DTS), a multimillion dollar high-tech robotic system that confines radiation leakage from mishandling or accidents while transferring the SNF into the small units. WCS has no plans to construct a DTS until the end of the first century of storage. The DTS is

also key to managing leaking canisters that may arrive, or while at WCS, deteriorate and threaten to leak.

Upon repackaging, all 3,000 of the canisters from which the SNF was removed instantly will become low-level radioactive waste. All of the casks anticipated for transport use to ISP will become LLRW unless a uniform TAD design is accepted and placed into use throughout the industry for canistering waste at the reactor sites, prior to delivery to ISP's CISF in TX.

WCS predicts 8 phases of storage, and all canisters in any given phase will be set on a 107 m. X 244 m. rectangular slab, about .5 m. to 1.0 m. thick. The high neutron radiation levels in the waste will continuously bombard the concrete pads as well as the concrete overpack that will be poured atop the canisters.

A rough calculation of the concrete volume of the slabs is 107 m. X 244 m. X .5 m. X 8 = 104,432 cu. m. of concrete. The NRC, by contrast, says the volume of concrete expected to be irradiated is much lower: "LLRW is generated during the long-term time frame during spent fuel repackaging operations, by unloading and loading operations, compaction of canisters removed from service, by replacement of storage casks, horizontal storage modules, and concrete pads, and by replacement of the DTS. Using the maximum values in the range described above, this volume of LLW is expected to be no more than about [480 cu. m. (630 cu. yd.).]" The difference between Petitioners' calculations and the NRC's is more than 100,000 cubic meters. The NRC agrees that high-burnup spent fuel will have considerably higher and longer-lasting neutron activation effects on concrete, but does not reconcile this reality with the minuscule projection of irradiated concrete from a century of neutron bombardment. This discrepancy must be recognized and explained.

**Contention 5: ISP Has Not Performed an Environmental Justice
Investigation of Transportation Communities; the ISP CISF Will Cause
Disparate Impacts From Routine and Non-Routine Transportation-Related
Radiation Exposures Upon Minority and Low-Income Populations Along
Hundreds Of Miles of Transportation Corridors**

Federal authorities believe that a catastrophic accident involving a spent fuel cask in transit could spread radiation as far as 50 miles. More than 200,000,000 people live within 50 miles of a highway, barge or rail route that will be used to transport spent nuclear fuel to Texas, traveling through scores of cities. A significant proportion of the population of cities through which the rail routes pass, carrying 95% of the overall waste, is low to moderate income people and people of color. Historically, lower-income people tend to live in neighborhoods close to main rail lines (the "wrong side of the tracks" perception).

It is a Federal requirement that for such dangerous cargoes, specific plans have to be made to transport spent nuclear fuel through urban area. Federal law also requires consideration of income, as well as racial and age characteristics of the population along the rail routes, and that the risks from dangerous cargo transports not be disproportionately imposed on low/moderate income people, the elderly, and people of color.

ISP/WCS has completely excluded from its application any investigation or analysis of the likelihood that millions of low and moderate income people and people of color may be disproportionately exposed to danger from 20 years' shipments of thousands of cargoes of spent

nuclear fuel.

Contention 6: Inadequate Disclosure of Oil and Gas Drilling Activity Beneath the WCS CISF Site

Horizontal hydraulic fracturing (“fracking”) activity is taking place in close proximity to the ISP/WCS site. It is technologically and legally possible that fracking will be undertaken directly beneath the waste storage areas of the site. Fracking has seismic, groundwater flow and water consumption implications. There is no indication in the Environmental Report or Safety Analysis Report of legal controls over present or potential oil and gas drilling directly beneath the site. The presence, overall, of mineral interests beneath or proximate to the waste storage portion of the ISP site is inadequately disclosed. Consequently, the realistic prospects for mineral development immediately surrounding and underneath the WCS site, and the implications for inducing or expediting geological problems including seismicity and groundwater movement and implications for the Ogallala Aquifer, located beneath or within a short distance of the WCS site, are unknown.

Contention 7: Disqualifying Foreign Ownership of Interim Storage Partners

Interim Storage Partners is majority controlled by a foreign corporation and is barred by statute and regulation from seeking or receiving a license from the Nuclear Regulatory Commission.

Section 103(d) of the Atomic Energy Act states that “No license may be issued to an alien or any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government.”

Interim Storage Partners LLC (ISP) is a limited liability company formed in Delaware with principal offices at Andrews, Texas. ISP is jointly owned by Orano CIS (51%) and Waste Control Specialists LLC (49%). Interim Storage Partners is majority owned and controlled by Orano CIS, which is owned 100% by Orano USA LLC. Orano CIS and Orano USA are both limited liability companies formed in the State of Delaware. Orano USA is ultimately majority owned and controlled by FAE AEC, an entity of the French government.

Contention 8: The Discussion of Alternatives to the Proposed Project Is Inadequate Under NEPA

The Environmental Impact Statement must examine all reasonable alternatives and include a thorough discussion of the no-action alternative, as well as any “reasonable” “action” alternatives.

There are at least five “action” alternatives not presented or considered by ISP:

- the proposal, plus establishment of a Dry Transfer System or equivalent capability to repackage SNF at the ISP site;
- the proposal plus modification of the site’s Emergency Response Plan to include preparations for emissions mitigation (*i.e.*, reduction of emissions to the surrounding environment of radiation and/or radioactive material from SNF as a result of damage to SNF

assemblies and/or SNF containers);

- the proposal, plus modification of the ISFSI design so that SNF stored at the ISP facility would be more robust against accident, attack, and/or removal of SNF assemblies or their components for malevolent purposes;

- ownership, design, and control of the facility by the US federal government (together with a competent disclosure that there is no legal authority for such); and

- accelerated movement to implement Hardened Onsite Storage (“HOSS”) principles at reactor sites. *See* “HOSS Statement of Principles for Safeguarding Nuclear Waste at Reactors,” https://ieer.org/wp/wp-content/uploads/2010/03/HOSS_PRINCIPLES_3-23-10x.pdf (March 23, 2010); Dr. Gordon Thompson's January 2003 “Robust Storage” report, <http://archives.nirs.us/reactorwatch/security/sechosses012003.pdf> (Executive Summary); <http://archives.nirs.us/reactorwatch/security/sechossrpt012003.pdf> (Full Report).

Contention 9: ISP Misrepresents the Financial Benefits to the Federal Government From Opening and Operating A CISF

ISP maintains that its waste facility will provide over \$5 billion of net economic benefit to the U.S. Government.

ISP claims that the \$5 billion is “measured as the cost of continuing to reimburse operators of shutdown plants for storing spent nuclear fuel over the next 40 years under a “no action” scenario and subtracting the reduced reimbursement schedule, if the CISF is built.” ISP claims the calculation totals \$5,401,062,500, as shown in Table 7.4-1 of the ISP/WCS Environmental Report.

The fault with ISP’s computations is that Table 7.4-1 only depicts purported benefits from development of the ISP CISF and does not explain what the Federal Government would have to pay, anyway, for continued storage of SNF at reactor sites under existing legislation and DOE contracts with utilities, plus contemporaneous large payments for the opening and operation of the WCS/ISP CISF, including all related activities, such as transportation. If a great deal of spent fuel is moved to WCS, then, according to WCS’s plan, the Federal Government will pay enormous sums of money to WCS instead. Those sums are not deducted from the \$5 billion “benefit” WCS has calculated.

Contention 10: The Predicted Lengths of the Period of Operation of the CISF Warrants Scrutiny Under NEPA of Storage Exceeding 100 Years

The possibility of “indefinite” or “forever” storage of spent nuclear fuel at WCS is genuine, and it must be investigated, analyzed and disclosed in the Environmental Impact Statement.

WCS’s estimates of the operational life of the WCS SNF/GTCC as being 60 to 100 years fail to dispel legitimate questions as to whether WCS might become a *de facto* permanent repository, and whether its fitness and suitability for storing high-level spent nuclear fuel on the surface of the Texas desert for hundreds, or even thousands of years, or forever, should be considered under NEPA.

The expert witness for the Petitioners, Dr. Gordon Thompson, says that it is reasonable to

conclude that storage of SNF for more than a century is likely. According to Thompson, the U.S. Department of Energy assumes that so-called “institutional controls” will probably end after the first 100 years of waste storage at WCS. The Environmental Impact Statement must seriously analyze and discuss the circumstance where CISF storage becomes the indefinite, “forever,” option. Political and economic considerations are hard to predict a century out, but ISP, itself, has left open the question of the ultimate length of the operating life of the CISF. The design expectations of the CISF differ greatly from the design of a permanent geological repository, as do the geological and hydrological requirements. The prospect that the WCS CISF might become, by default, an “indefinite” or “permanent” storage facility is highly significant.

Contention 11: Having No Dry Transfer System And No Radioactive Emissions Mitigation Plan For ISP’s CISF Are Impermissible Omissions Under the Atomic Energy Act And Must Be Addressed Under NEPA

ISP’s plan to not have a dry transfer system (“DTS”) or other technological means of handling problems with damaged, leaking or externally contaminated SNF canisters or damaged fuel in the canisters at the WCS site, from the beginning date of operations requires that unanalyzed risks and increased possibilities of minor to severe radiological accidents must be addressed in the Environmental Impact Statement. There is no plan for radiation emissions mitigation or radioactive releases at the CISF site. There are unacknowledged radiological threats posed by high burnup fuel as well as inherent dangers arising from the handling and transfer of spent nuclear fuel. At the earliest, WCS intends to have DTS technology to robotically unload and reload canisters at the end of its first 100 years of operations. The failure to have a functioning DTS from inception of operations at the WCS site violates the Atomic Energy Act’s mandate that the public be protected.

WCS plans to reject storage of canisters with damaged or unstable fuel, external contamination or leaks, so they supposedly will not be stored at WCS. Instead, WCS believes that canisters it receives will remain stable and undamaged until finally transported away to a geological repository. Consequently, the Emergency Response Plan for the CISF contains no provisions for “emissions mitigation” (*i.e.*, reduction of emissions or releases to the surrounding environment of radiation and/or radioactive material from SNF as a result of damage to SNF assemblies and/or SNF containers).

Two factors warrant having a DTS from the day WCS opens: (1) the DOE requirement that spent fuel be repackaged in tens of thousands of smaller, uniform canisters before it is delivered to DOE for the geological repository is a task that likely will be imposed on CISFs; and (2) some canisters will arrive at WCS with problems: uncertain thermal difficulties from carrying high burnup spent nuclear fuel, damage in transit, accidents or sabotage in transit, and upon receipt at the WCS site will require a dry transfer system to be available immediately to handle those problems.

Petitioners’ expert Dr. Gordon Thompson predicts that either during transit or at the WCS site, there could be damage to SNF fuel assemblies and/or containers as a result of accident, attack or slow degradation. Likely modes of attack would include “initiation of a ‘cask fire’ involving sustained burning in air of the zircaloy cladding of SNF, causing release from SNF to the atmosphere of radionuclides including cesium-137;” or a “‘non-fire release’ involving release

from SNF to the atmosphere of radionuclides but without the occurrence of a sustained zircaloy fire,” which he further states could occur from an accident or slow degradation. Without availability of repackaging capability from a DTS, and without an Emergency Response Plan to reduce radioactive emissions if such horrific events take place, the spent fuel assemblies or SNF containers would remain at the site in a damaged condition, or would be transported elsewhere in a damaged condition. Dr. Thompson predicts that in the event of a cask fire, there could be radioactive contamination of the surrounding environment at levels comparable to contamination levels in the vicinities of the Chernobyl reactor after its 1986 accident and the Fukushima reactors after their 2011 accident, along with huge financial burdens.

Contention 12: ISC/WCS Is Disqualified From And/Or Has Waived Applicability Of The Continued Storage Generic Environmental Impact Statement To the Licensing Review

A study performed in 2014 by the NRC called the “Waste Storage Generic Environmental Impact Statement,” is being used by WCS to dispense with study of the accident or sabotage and terrorist potential of WCS’s actual proposal. The WCS proposal says that the transportation element of its business plan is exempt from investigation or analysis and subsequent mention in the Environmental Impact Statement being written specifically on the WCS proposal. Petitioners claim that since the GEIS doesn’t address the serious possibilities that something could go awry, the Environmental Impact Statement for WCS must address them.

The GEIS assumes, for example, that there will be a spent fuel pool or DTS capability available at WCS; but there won’t be, for at least the first century. The GEIS assumes that the operator of a CISF would have a plan to deal with radioactive emissions from damaged, leaky or contaminated canisters or casks; WCS will not.

According to the NRC, there is no DTS capability located anywhere in the United States, including at any of the nuclear plant sites from which spent nuclear fuel shipments to WCS will originate. The WCS plan doesn’t cover these flaws and maintains they are not needed and so no analysis is necessary on accident or sabotage potential. WCS says, “The authorized storage systems are designed to provide long-term storage of SNF.” To WCS, the canisters are near-ininitely manageable by means of evolving aging management plans.

Contention 13: Any Anticipated Nuclear Reprocessing Activity Must Be Disclosed In The EIS And Included in Cumulative Effects Analysis

The WCS CISF, by aggregating SNF in west Texas, would provide a stockpile of spent fuel for purposes of reprocessing. The return of spent fuel reprocessing is supported by the Texas Commission on Environmental Quality and is also being actively advocated by proponents of the Holtec CISF proposed to be constructed in southeastern New Mexico about 40 miles from WCS. The radioactively dirty and dangerous industrial activity of reprocessing must be addressed, analyzed and disclosed in a discussion of cumulative environmental impacts of the WCS waste storage project.

Reprocessing is controversial because it risks nuclear weapons proliferation (by separating out weapons-usable plutonium); it is environmentally destructive; and it is very expensive. The atmospheric and surface water releases of radioactivity by reprocessing are large

scale. French and United Kingdom reprocessing facilities, taken together, after 70 years of routine operation (with no accidents, leaks, spills, etc.), would equal the Chernobyl catastrophe in scale of environmental releases.

Reprocessing involves uses of acidic chemicals to separate heavy metals, and in the process extremely radioactive spent nuclear fuel is turned into a liquid, increased in volume and all of the residues are high-level radioactive wastes.

Besides the association of reprocessing by Holtec and ELEA with the aggregation of SNF at Holtec, spent fuel storage at close by WCS would also supply feedstock for reprocessing. Reprocessing was discussed very favorably in the Texas Commission on Environmental Quality's special report to Governor Rick Perry, "Assessment of Texas's High Level Radioactive Waste Storage Options" (March 2014) by the agency's Radioactive Materials Division.

Contention No. 14: NEPA Requires Significant Security Risk Analyses for the Spent Nuclear Fuel and Greater-Than-Class-C Wastes Proposed for Interim Storage, And Associated Transportation Component, at ISP/WCS's Texas Facility

The NRC should consider the risks, impacts and safety/security arrangements for the ISP/WCS CISF SNF transportation effort in light of the constantly-changing threat environment that radiological shipments to waste storage facilities such as ISP/WCS face, and a consequent need to plan for a changing variety of design-basis threats and beyond-design-basis-events.

There is only a passing reference to terrorism or sabotage in WCS's application. There is no reference nor analysis in any of the application papers to the risks of terrorism and/or accident during the anticipated transportation of SNF/GTCC wastes.

Petitioners' expert, Dr. James David Ballard, a professor at California State University-Northridge and consultant to the State of Nevada on security aspects of the Yucca Mountain repository case says serious risks are present and that the WCS planners have a "very limited vision of risks." Dr. Ballard concluded that WCS's proposal "offers few specifics, hides behind the secrecy of security regulations propagated by the NRC. . . . NRC in procedure and ISP in application do not offer a cold eyed assessment of the issues. . . . Obscuring the risks of transport and operation concerns like sabotage by attempting to use generic analysis and presenting a Pollyannaish version of reality to gain a contract is not effective business; it is rent seeking behavior of the most dangerous type."

Petitioners' expert, Dr. Gordon Thompson, found that a hypothetical terrorist or sabotage attack causing a Type IV release could include a cask fire involving two canisters of SNF that would cause a substantial release of radiation, with a magnitude between 'the Fukushima release (36 PBq) and the Chernobyl release (85 PBq).'" He warns that theft of radiological components from the CISF could have global implications because of the nuclear arms and dirty bombs into which they might be converted.