Nos. 23-1300, 23-1312

IN THE

Supreme Court of the United States

NUCLEAR REGULATORY COMMISSION, *et al.*,

Petitioners,

v.

TEXAS, *et al.*,

Respondents.

INTERIM STORAGE PARTNERS, LLC,

Petitioner,

v.

TEXAS, *et al.*,

Respondents.

ON WRITS OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FIFTH CIRCUIT

BRIEF OF *AMICI CURIAE* DON'T WASTE MICHIGAN, ET AL., IN SUPPORT OF RESPONDENTS

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INTEREST OF *AMICI CURIAE*[1]

The *Amici Curiae* in this case are citizen organizations who have members who live, work or recreate from within a few hundred feet to a dozen or so miles from the railroad routes over which more than 95% of the nuclear waste from nuclear reactors would be transported to proposed storage facilities. These organizations, on behalf of their members, are concerned about the dangers associated with transporting highly radioactive nuclear waste across the country so near to where these members would be exposed to significant radiation.

Don't Waste Michigan (DWM) is a 40-year-old grassroots association with members in southern and central Michigan. DWM is located at 2213 Riverside Drive NE, Grand Rapids, Michigan 48505. DWM has opposed various incarnations of nuclear energy, from commercial nuclear power plants to policy and practical plans for disposal of radioactive waste, and engages in public education and legal and administrative advocacy in licensing proceedings.

DWM also supports measures to protect the health and safety of its members and the Michigan public from radiological injury.

During the height of the opposition in the 1990's to initiation of a low-level radioactive waste dump that was being forced on Michigan by federal law as a host state, Don't Waste Michigan turned out rallies of 3,000 to 5,000

1. Pursuant to Rule 37.6, *Amici* affirm that no counsel for a party authored this brief in whole or in part, and that no person other than *Amici*, their members, or their counsel made a monetary contribution to fund its preparation or submission.

persons on regular basis. Many of these persons identified themselves as Don't Waste Michigan members.

Presently, DWM has more than 60 members statewide, including many educators, and seeks in the present case to intervene on behalf of seven (7) of its members.

Citizens' Environmental Coalition was founded in 1970 around the time Love Canal in Western NY made headlines related to the irresponsible management of hazardous waste. Since that time CEC has actively educated and mobilized New Yorkers around key threats to members' health, public health and the environment, such as passage of hazardous waste legislation in New York and the cleanup of the West Valley nuclear waste site after the failed nuclear reprocessing experiment there. CEC has organized to close New York's aging nuclear reactors. The group also supports sound and sustainable energy alternatives such as efficiency and renewables, as well as the use of safer chemicals and green chemistry. CEC is concerned about the current careless planning to transport and store nuclear waste in conjunction with severe deficiencies in our national transportation infrastructure. The group works at the local, state and national levels, primarily with administrative agencies and other non-profit organizations, providing testimony and written comments and has approximately 5000 members. CEC is located at 422 Oakland Valley Rd., Cuddebackville, NY 12729.

San Luis Obispo Mothers for Peace (SLOMFP) is a non-profit organization based in California that historically has exposed and opposed the dangers posed by Diablo Canyon and other nuclear power reactors, nuclear weapons, and radioactive waste. The organization promotes peace,

environmental and social justice, and renewable energy and supports measures to protect its members' health and public health in general from radiological injury. SLOMFP came together in 1969 to oppose the Vietnam War and to advocate for peace and in the early 1970's intervened in the Atomic Energy Commission licensing proceeding against the Diablo Canyon nuclear power plant. Currently the organization has 1,400 supporters and about 50 formal voting members. MFP has litigated the NRC's failure to comply with federal laws governing nuclear power and radioactive waste management before the agency as well as in the Ninth and the First U.S. Circuit Courts; has raised various management issues at Diablo Canyon before the California Public Utilities Commission; and pursues educational outreach via social media, speaking events, rallies, mailings, letter-writing campaigns, letters to editors and opinion pieces in newspapers.

Citizens for Alternatives to Chemical Contamination (CACC) is a grassroots environmental education and advocacy organization headquartered in central Michigan at 8735 Maple Grove Rd., Lake, MI 48632. CACC is dedicated to the principles of social and environmental justice, pollution prevention on behalf of preserving public health and the health of CACC's members, citizen empowerment, and protection of the Great Lakes ecosystem.

Nuclear Energy Information Service is a non-profit organization committed to ending nuclear power in this country and worldwide. Located at 3411 W Diversey Avenue, #13 Chicago, IL 60647, with over 200 members, NEIS educates, activates and organizes the public on energy issues; builds and mobilizes grassroots power and nonviolent opposition to nuclear power; and advocates

sustainable and ecologically sound energy alternatives. Founded in 1981, NEIS has consistently opposed nuclear power because of cost; resistance to effective regulation; unacceptable and unnecessary safety and health risk; the tremendous disasters it could cause and has caused; the release of radionuclides into the environment by less than diligent regulators; the environmental damage caused by every step of the nuclear fuel chain; long-lived radioactive wastes; and risks of a terrorist incident at a nuclear plant or at radioactive waste storage sites, and along proposed transportation routes.

The Sustainable Energy and Economic Development (SEED) Coalition is a grassroots organization that has 2000 members, mainly in Texas, but some in New Mexico. Located at 605 Carismatic Lane, Austin, Texas, 78748, SEED Coalition advocates for clean air and clean energy, has promoted solar and wind development in Texas, while opposing coal plants and urging their retirement. SEED Coalition seeks to protect the health and safety of its members and the general public from radiological injury, and to advance that aim, in the past has participated in nuclear power plant licensing proceedings in opposition to Comanche Peak 3 & 4 and South Texas Project 3 & 4. SEED also historically opposed Waste Control Specialists' low-level radioactive waste facility, raising concerns including the proximity of groundwater to the pits in which radioactive waste is being disposed.

Amici also include Leona Morgan. Ms. Morgan is a Dine' Navaho who lives in Albuquerque, New Mexico. A main railroad line passes within 1 mile of her home and place of employment. It is a main route from California that passes through Arizona to Albuquerque. That route

will likely be used to transport cargoes of radioactive wastes to the ISP and Holtec storage facilities. Ms. Morgan is concerned for her personal safety and that of others who live in her household from radiation exposure in the event of a serious transport accident, sabotage or a terrorist attack on a shipment, and believes that she may be exposed to routine radiation emissions if SNF casks become a normal cargo delivered to ISP by way of Albuquerque and that she might experience more serious radioactive exposures and suffer health consequences and serious property damage in the event of an accident involving breach of a canister of radioactive waste.

SUMMARY OF THE ARGUMENT

Interim Storage Partners (ISP) and Holtec International (Holtec) have been licensed by the Nuclear Regulatory Commission (NRC) to construct and operate storage facilities to store highly radioactive nuclear waste in Texas and New Mexico. The NRC has no statutory authority to issue licenses for away-from-reactor storage facilities. Pursuant to this Court's decisions in *West Virginia v. EPA* and *Loper Bright Enterprises v. Raimondo*, no deference should be given to the NRC's decision to issue licenses to ISP and Holtec.

To paraphrase this Court's language in *West Virginia*, these are "extraordinary cases" in which the "history and the breadth of the authority that [the agency] has asserted," and the "economic and political significance" of that assertion, provide a "reason to hesitate before concluding that Congress" meant to confer such authority.

If ISP and Holtec are allowed to proceed, thousands of tons of highly radioactive waste will be transported across the country in containers with no assurance of safety. And there is a danger of earthquakes at the proposed storage sites. Therefore, the evidence before the agency and the court below was that this case presents a major question, the resolution of which must not be left to the discretion of the agency.

ARGUMENT

I. THE NUCLEAR REGULATORY COMMISSION HAS NO AUTHORITY UNDER THE ATOMIC ENERGY ACT TO LICENSE AN AWAY-FROM-REACTOR STORAGE FACILITY FOR NUCLEAR WASTE.

Nuclear waste is a problem with no good solution. As the District of Columbia Circuit described it:

> Even though it is no longer useful for nuclear power, SNF [spent nuclear fuel] poses a dangerous, long-term health and environmental risk. It will remain dangerous "for time spans seemingly beyond human comprehension." *Nuclear Energy Inst., Inc. v. Envtl. Prot. Agency*, 373 F.3d 1251, 1258 (D.C. Cir. 2004) (*per curiam*). Determining how to dispose of the growing volume of SNF, which may reach 150,000 metric tons by the year 2050, is a serious problem. *See* Blue Ribbon Commission, *supra*, at 14. Yet despite years of "blue ribbon" commissions, congressional hearings, agency reports, and site investigations, the United

> States has not yet developed a permanent solution. That failure, declared the most recent "blue ribbon" panel, is the "central flaw of the U.S. nuclear waste management program to date." *Id.* at 27. Experts agree that the ultimate solution will be a "geologic repository," in which SNF is stored deep within the earth, protected by a combination of natural and engineered barriers. *Id.* at ix, 29. Twenty years of work on establishing such a repository at Yucca Mountain was recently abandoned when the Department of Energy decided to withdraw its license application for the facility. *Id.* at 3. At this time, there is not even a prospective site for a repository, let alone progress toward the actual construction of one.
>
> Due to the government's failure to establish a final resting place for spent fuel, SNF is currently stored on site at nuclear plants. This type of storage, optimistically labeled "temporary storage," has been used for decades longer than originally anticipated. The delay has required plants to expand storage pools and to pack SNF more densely within them. The lack of progress on a permanent repository has caused considerable uncertainty regarding the environmental effects of temporary SNF storage and the reasonableness of continuing to license and relicense nuclear reactors.

New York v. Nuclear Regulatory Comm'n, 681 F.3d 471, 474 (D.C. Cir. 2012).

Holtec and ISP contemplate constructing and operating what are euphemistically called "interim" storage facilities, in New Mexico and Texas, respectively. They would store 40,000 tons to over 170,000 tons of radioactive waste, either above ground or only partially underground. The proposed facility in New Mexico, if built, would be the largest concentration of radioactive material this side of the sun.

Although Holtec and ISP facilities are initially licensed for 40 years, those licenses could be renewed for additional 20-year periods. So, if a permanent repository cannot be developed, the Holtec and ISP facilities could become *de facto* permanent repositories, without the physical barrier protections of a permanent repository. The implications of this scenario are significant. A surface or near-surface nuclear waste repository would require management and oversight in perpetuity, *i.e*, forever.

A. The Atomic Energy Act Does Not Authorize Storage of Nuclear Waste Away From the Nuclear Reactor, Nor Even Mention It.

The licensing provision of the Atomic Energy Act, 42 U.S.C. § 2133, states:

> The Commission is authorized to issue licenses to persons applying therefor to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, use, import or export under the terms of an agreement for cooperation arranged pursuant to section 123, utilization or production facilities for industrial or commercial purposes.

This section clearly limits the Commission's licensing authority to utilization and production facilities.

42 U.S.C. § 2014 defines "production facility" as follows:

> (1) any equipment or device determined by rule of the Commission to be capable of the production of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; or (2) any important component part especially designed for such equipment or device as determined by the Commission. Except with respect to the export of a uranium enrichment production facility, such term as used in Chapters 10 and 16 shall not include any equipment or device (or important component part especially designed for such equipment or device) capable of separating the isotopes of uranium or enriching uranium in the isotope 235.

The definition of "utilization facility," pursuant to § 2014, is:

> (1) any equipment or devices, except an atomic weapon, determined by rule of the Commission to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public, or peculiarly adapted for making

> use of atomic energy in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; or (2) any important component part especially designed for such equipment or device as determined by the Commission.

Obviously, neither of these definitions includes a nuclear waste storage facility.

In proceedings below, the Nuclear Regulatory Commission has argued that it has some inherent authority to regulate any issue regarding nuclear power. But, as held by decisions of this Court and explained *infra*, debatable inherence is not regulatory authority when it is not clearly granted by statute.

B. This Court Has Held That There Are "Extraordinary Cases" Where An Agency's Authority Must Be Clearly Stated By Congress.

This Court, in *West Virginia v. EPA*, 142 S.Ct. 2587, 2608 (2022), noted that:

> there are "extraordinary cases" that call for a different approach—cases in which the "history and the breadth of the authority that [the agency] has asserted," and the "economic and political significance" of that assertion, provide a "reason to hesitate before concluding that Congress" meant to confer such authority.

The *West Virginia* decision went on to say:

> Extraordinary grants of regulatory authority are rarely accomplished through "modest words," "vague terms," or "subtle device[s]." *Whitman*, 531 U.S. at 468, 121 S.Ct. 903. Nor does Congress typically use oblique or elliptical language to empower an agency to make a "radical or fundamental change" to a statutory scheme. *MCI Telecommunications Corp. v. American Telephone & Telegraph Co.*, 512 U.S. 218, 229, 114 S.Ct. 2223, 129 L.Ed.2d 182 (1994). Agencies have only those powers given to them by Congress, and "enabling legislation" is generally not an "open book to which the agency [may] add pages and change the plot line." E. Gellhorn & P. Verkuil, *Controlling Chevron Based Delegations*, 20 Cardozo L. Rev. 989, 1011 (1999). We presume that "Congress intends to make major policy decisions itself, not leave those decisions to agencies." *United States Telecom Assn. v. FCC*, 855 F.3d 381, 419 (CADC 2017);*West Virginia v. Envtl. Prot. Agency*, 142 S.Ct. 2587, 213 L.Ed.2d 896 (2022) (Kavanaugh, J., dissenting from denial of rehearing *en banc*).

Id. at 2609.

The NRC, ISP, and its *Amici* have argued that this case is not "extraordinary," as contemplated in the *West Virginia* decision. They claim that the NRC has approved away-from-reactor storage facilities in the past.[2] But

2. NRC Brief, p. 5-6.

eight of those facilities were licensed as federal facilities pursuant to the Nuclear Waste Policy Act. Those facilities are Big Rock Point, Fort St. Vrain, Haddam Neck, Humbolt Bay, Maine Yankee, Rancho Seco, Trojan, and Yankee Rowe. The licensing of those facilities is irrelevant to the issue in this case, *i.e.*, that the licensing of private, non-federal, waste facilities is not authorized by the Atomic Energy Act.

There are only two licensed private away-from-reactor facilities, aside from the two at issue in this case. Those are GE Morris and Private Fuel Storage.[3] The Morris facility was never meant to be a storage facility. It was designed to be a facility for reprocessing nuclear waste, but for various technical reasons, it was never put into operation as a reprocessing facility. It therefore became a waste storage facility by default. It was being decommissioned and its license was set to expire in 2022.[4] It holds only 772 tons of nuclear waste, far less than the ISP or Holtec facilities would manage. Clearly, the Morris facility does not present the same issues as the ISP and Holtec facilities that would hold tens of thousands of tons of radioactive waste for 40 or more years.

Although the Private Fuel Storage facility was licensed to hold 40,000 tons of waste, it has never been placed in operation. Nor was the license ever challenged as being beyond the authority of the NRC. As the Fifth Circuit correctly observed in the decision below, the D.C.

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3. *Id.*

4. https://www.nrc.gov/docs/ML2119/ML21190A130.pdf&ved=2ahUKEwi2ibaEtq-KAxVDGtAFHRnlF68QFnoECB4QAQ&usg=AOvVaw3st1lJKXXV49DNDtjCXK-l

Circuit, in *Bullcreek v. NRC*, 359 F.3d 536 (D.C. Cir. 2004), did not address the issue of the NRC's authority under the Atomic Energy Act. The issue in that case was whether the Nuclear Waste Policy Act preempted or superseded the Atomic Energy Act. The court and the parties assumed for the sake of argument that the NRC had authority under the AEA to license a private away-from-reactor storage facility. So the NRC cannot credibly argue that the Private Fuel Storage project demonstrates the agency's authority under the AEA to license an away-from-reactor storage facility.

The Fifth Circuit, in the decision below, *Texas v. Nuclear Regulatory Commission*, 78 F.4th 827 (5th Cir. 2023), discussed and evaluated all of the NRC's attempts to bring the licensing of an away-from-reactor storage facility within the provisions of the Atomic Energy Act, and the court correctly found those attempts meritless. The Fifth Circuit's decision is wholly consistent with this Court's holding in *West Virginia*, where Chief Justice Roberts said:

> Thus, in certain extraordinary cases, both separation of powers principles and a practical understanding of legislative intent make us "reluctant to read into ambiguous statutory text" the delegation claimed to be lurking there. *Utility Air*, 573 U.S. at 324, 134 S.Ct. 2427. To convince us otherwise, something more than a merely plausible textual basis for the agency action is necessary. The agency instead must point to "clear congressional authorization" for the power it claims. *Ibid.*

West Virginia, 142 S.Ct at 2609.

As detailed *infra*, the nuclear waste facilities proposed by ISP and Holtec constitute precisely the type of "extraordinary case" referred to in the *West Virginia* decision.

C. The NRC's Asserted Interpretation of the Atomic Energy Act Is Not Entitled To Deference.

In a further effort to justify licensing these nuclear waste facilities, the NRC makes a scattershot reference to several sections of the Atomic Energy Act, but cannot point to any provision of the Act that specifically authorizes the licensing of an away-from-reactor storage facility.[5] The NRC claims that because the AEA authorizes the NRC to regulate source material, special nuclear material, and byproduct material, which are components of spent nuclear fuel, there is some inherent authority in the AEA for the NRC to regulate the storage of spent nuclear fuel.

Also, the NRC points to judicial decisions allegedly supporting the agency's authority,[6] but again, there is no citation to any provision in the Atomic Energy Act. Ultimately, the agency relies on what it claims is its interpretation of the Atomic Energy Act.

This Court held last term, in *Loper Bright v. Raimondo*, 144 S.Ct. 2244 (2024), that:

> Courts must exercise their independent judgment in deciding whether an agency has acted within its statutory authority, as the APA

5. NRC Brief p. 2-3, 32.

6. *Id.* at p. 31.

> requires. Careful attention to the judgment of the Executive Branch may help inform that inquiry. And when a particular statute delegates authority to an agency consistent with constitutional limits, courts must respect the delegation, while ensuring that the agency acts within it. But courts need not and under the APA may not defer to an agency interpretation of the law simply because a statute is ambiguous.

So this Court owes no deference to the NRC's interpretation of the Atomic Energy Act.

Furthermore, even without reliance on *Loper Bright*, the routine canons of statutory construction yield the same result. Under the canon of *expressio unius est exclusio alterius*, the expression of specific items establish legislative intent to exclude other similar items.[7] In other words, the AEA's express naming of the NRC's authority to source material, special nuclear material, and byproduct material works to exclude any authority over spent nuclear fuel.

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7. Antonin Scalia and Bryan Garner, *Reading Law: The Interpretation of Legal Texts*, p. 107 (2011).

II. BASED ON THE SIGNIFICANT NATIONWIDE IMPACT OF TRANSPORTING AND STORING THOUSANDS OF TONS OF HIGHLY RADIOACTIVE WASTE TO TWO STORAGE FACILITIES WITHIN 40 MILES OF EACH OTHER, THIS CASE PRESENTS AN EXTRAORDINARY CASE WITH NO CLEAR LICENSING AUTHORITY GRANTED TO THE NRC.

As noted above, radioactive waste, including spent nuclear fuel, is dangerous for hundreds of thousands of years. There are currently about 90,000 metric tons of nuclear waste in the United States, with about 2,000 metric tons being produced each year.[8] So, over the 40-year licensing period for the ISP and Holtec storage facilities, another 80,000 additional metric tons of waste would be produced. Thus, the current inventory of nuclear waste and the amount produced during the life of the storage facilities are more than the two facilities are designed to hold. No consideration was given to what happens under that scenario.

In the administrative proceedings below, the NRC was presented with numerous facts and explanations as to why the impacts of ISP's and Holtec's proposals would be devastating to people and the environment. But the NRC minimized or ignored these impacts.

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8. https://www.energy.gov/ne/articles/5-fast-facts-about-spent-nuclear-fuel

A. The Waste Will Be Transported Across The Country From Various Locations.

Most, if not all, of the radioactive waste destined for the storage facilities will come from the various nuclear reactors located all over the country. The transportation of the waste will be accomplished primarily by rail. The majority of the reactors are located in the East, from Maine down to South Carolina and Georgia. Other reactors are in Illinois, Ohio, Iowa, Nebraska, Texas and California. The likely routes for transporting the waste from these reactors to the proposed ISP and Holtec sites amount to, in the aggregate, hundreds of thousands, or even millions of miles. The risk of transporting so much radioactive waste over that many miles is significant.

A thorough analysis of transportation risks was set forth in the record in a report by Dr. James David Ballard submitted to the ASLB in the licensing proceeding.[9] Dr. Ballard first notes the geographic dispersion of the nuclear reactors from which waste would be transported to the storage facility. He states that a generic analysis fails to account for the complexity of risks such a massive supply infrastructure implies. He therefore concludes:

> This lack of the ability to perceive systematic risk complexity for a proposed interim storage facility may well underestimate the impacts of a radiological event involving these materials. Thus, a programmatic Environmental Impact Statement (EIS) should be initiated prior to the proposed action and that addresses the

9. https://www.nrc.gov/docs/ML18317/ML18317A444.pdf

> totality of the shipment infrastructure that will supply this new storage. Failure to supply a programmatic EIS (transportation EIS) prior to the proposal storage phase (a separate EIS/EA) has left [the storage facility] vulnerable to liability in the event of a radiological emergency at the storage site,but perhaps also while in-transit wastes are moving towards that destination. The ISP proposal is currently insufficient to address the transportation issue for waste movements to the proposed CISF on any level.

Dr. Ballard goes on to explain why shipments of radioactive waste would be attractive targets for terrorist groups or others who would attack the shipments.

A technical report by the Nuclear Waste Technical Review Board, *Preparing for Nuclear Waste Transportation* (2019)[10], is also significant. That report identifies 18 technical issues regarding transportation of nuclear waste. The critical determination from that report is as follows:

> DOE has examined the trend in SNF dry storage at nuclear power plant sites (Williams 2013). On average, during 2004-2013, the nuclear utilities discharged SNF that has higher burnups (approximately 45 Gwd/MTU) than previously discharged SNF and, therefore,

10. https://www.nwtrb.gov/docs/defaultsource/reportnwtrb_nuclearwastetransport_508.pdf&ved=2ahUKEB67Hx4s-KAxVEg4kEHcaeLsoQFnoECA4QAQ&usg=AOvVaw2RbIC1KMyUxQKk1OwgN3xl

> is thermally hotter and more radioactive. In addition, the nuclear utilities are loading SNF into larger dry-storage casks and canisters to improve operational efficiency and reduce cost. The largest of these canisters now holds as many as 37 PWR assemblies or 89 BWR assemblies. As a result, these larger casks and canisters are hotter than earlier dry-storage casks and canisters; therefore, they will take longer to cool sufficiently to meet transportation requirements.
>
> DOE estimated that if SNF was repackaged from large casks and canisters to smaller standardized canisters (and using standard assumptions about the operating lifetime of the U.S. fleet of nuclear reactors), DOE could remove SNF from all nuclear power plant sites by approximately 2070. However, if no repackaging occurs, some of the largest SNF canisters storing the hottest SNF would not be cool enough to meet the transportation requirements until approximately 2100 (Williams 2013).[11]

In other words, nuclear waste cannot be safely transported to the storage facilities at any time during the period for which the facilities are licensed.

Robert Alvarez, an expert on nuclear waste, reviewed the NWTRB report and discussed the implications of the report as they relate to the Holtec storage facility in New

11. *Id.* at p. 77.

Mexico. But his observations apply equally to the ISP project. Mr. Alvarez offered four conclusions:[12]

> • With about a third of the world's spent power reactor fuel (SNF), the magnitude of long-distance transport of spent nuclear fuel and high-level radioactive waste in the United States is unprecedented.
>
> • Concerns surrounding the integrity of high-burnup spent nuclear fuel in dry storage are not resolved and may result in prolonged onsite storage for several decades.
>
> • There is a substantial lack of data regarding potential damage of SNF during transport.
>
> • Repackaging SNF for transport and disposal is an important missing element that has a major impact on the timing and implementation of a national SNF transportation program.

The record is clear, therefore, that the impacts of transportation of the nuclear waste are significant, even conceivably catastrophic, and exemplify the extraordinary case that this Court contemplated in *West Virginia v. EPA*.

B. There Is No Assurance That The Canisters In Which The Nuclear Waste Would Be Transported And Stored Are Safe.

The NRC has claimed that there are no health and safety issues, relying primarily on the pretense that the

12. https://www.nrc.gov/docs/ML18317/ML18317A443.pdf

canisters containing the radioactive waste are impervious to breaches or leaks that would cause radiation exposure. That assurance is not justified.

There is no indication that the canisters cannot fail, especially if they must last for the 40-year license period, the anticipated 60-year relicensing period, the 60-100-year anticipated life of the storage facilities, or indefinitely if no permanent repository is ever developed. The canisters will be above ground, or partially above ground, subject to weather and human activity.

According to Holtec and ISP, the cask systems that will be used at the storage facilities are licensed for 20 years. The life of the CIS facility will be far longer than 20 years. Even the anticipated 60-year relicensing period is longer than the licensing period for the containers. The NRC has not addressed this issue nor the impacts of the CIS facility operating beyond the licensing period for the canisters. ISP, Holtec, and the NRC apparently assume that the canisters will be relicensed to continue their use. This clearly makes their relicensing a rubber stamp. If it is not a rubber stamp, how will the integrity of the canisters be assured for relicensing? There is no plan in place to prevent or stop cracks and leaks, repair cracks, or maintain and monitor the fuel and its containment in order to prevent leaks, explosions or criticalities. This was determined by the Nuclear Waste Technical Review Board in a report, *Geologic Repositories: Performance Monitoring and Retrievability of Emplaced High-Level Radioactive Waste and Spent Nuclear Fuel* (May 2018).[13]

13. www.nwtrb.gov/our-work/reports/geologic-repositories-performance-monitoring-and-retrieveability-of-emplaced-high-level-radioactive-waste-and-spent-nuclear-fuel.

High burnup fuel also creates issues with the integrity of the canisters. Since 1999 the amount of high burnup fuel being used in nuclear reactors has increased substantially. Since 2012, all the fuel used in reactors has been high burnup. High burnup fuel is dangerously unpredictable and unstable in storage, even for a short term. High burnup fuel is twice as radioactive and over twice as hot as regular nuclear fuel. The cladding around high burnup fuel rods becomes thinner and more brittle, inducing cracking. This makes the storing and transportation of containers loaded with high burnup fuel more likely to leak radioactive material into the environment.

A June 2013 Department of Energy report states, "... cladding performance issues need to be addressed before this fuel can be loaded into dry casks and transportation systems," and "burnup rates as low as 30 Gwd/MTU can present performance issues including cladding embrittlement under accident conditions as well as normal operations."[14]

According to the Nuclear Waste Technical Review Board (NWTRB), the maximum oxide thickness for high burnup fuel (60-65 Gwd/MTU) is 100 μ/m. NWTRB, *Evaluation of the Technical Basis for Extended Dry Storage and Transportation of Used Nuclear Fuel* (December 2010).[15] According to the NWTRB, this corresponds to a metal loss of 70 μ/m using conservative assumptions. Since zirconium cladding is 600 μ/m, this

14. www.hsdl.org/?abstract&did=739345.

15. https://www.nwtrb.gov/docs/default-source/reportssynopsisdrystorage.pdf%3Fsfvrsn%3D4&ved=2ahUKEwiApN3R5s-KAxUr7skDHUIfBzoQFnoECBYQAQ&usg=AOvVaw0buvBH-0_Npapd4WZ0zW17

represents a thinning of the cladding wall of approximately 12%.

During reactor operation, there is friction wear between the cladding and fuel pellets caused by vibrations. If this wear is severe, a breach can occur. According to NWTRB, this is the principal cause of cladding failure of reactor fuel rods. Since high burnup fuel remains in the reactor longer, the likelihood of cladding defects is increased.

NRC regulation 10 C.F.R. § 72.122(h)(1) states that spent fuel cladding must be protected during storage against degradation that leads to gross ruptures in the fuel, or the fuel must be otherwise confined such that the degradation of the fuel during storage will not pose operational safety problems with respect to its removal from storage. Gross cladding defects are possible in all phases of dry cask storage. A gross cladding defect is a known or suspected cladding condition that results in the fuel not meeting its design-basis criteria for dry cask storage. Known or suspected failed fuel assemblies (rods) and fuel rods with cladding defects greater than pin holes and hairline cracks are prohibited.

Additionally, both individual fuel rods and fuel assemblies should be intact to preclude fuel handling or operational safety problems during loading and unloading operations. It is the responsibility of the licensee to ensure that fuel placed in dry storage meets the design-basis conditions. This definition is applicable to all phases of dry cask storage (from selection and inspection of the fuel before loading until the fuel is unloaded from the cask or the cask is placed in a permanent repository). Alternative

means, such as canning, will be required for dry cask storage of fuel that does not meet design-basis conditions.

Robert Alvarez has discussed additional issues concerning the storage of high burnup fuel.[16] Among other observations, Mr. Alvarez notes that once it is used, high burnup significantly boosts the radioactivity in spent fuel and its commensurate decay heat. Mr. Alvarez confirms, as noted above, the fuel that high burnup fuel may cause damage to the fuel cladding and that even the NRC admits to the potential for the cladding of spent fuel with burnups greater than 45 Gwd/MTU to be damaged during the licensing period. Mr. Alvarez also notes that ISP and Holtec recognize the concerns and uncertainties regarding high burnup fuel because they claim that the damaged fuel will be canned (*i.e.*, contained) inside the canister. Both ISP's and Holtec's license applications claim that the two facilities will not accept high burnup fuel considered to be damaged unless it is placed in a more expensive double-shell canister. Robert Alvarez maintains that consequently, the fuel will be stranded for decades, since there is no imminent determination of how to assess its long-term integrity. The Nuclear Waste Technical Review Board recommends "that a validation inspection program of both low and high-burnup fuels be instituted after 15 and 30 years of storage,"[17] but that program does not exist.

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16. https://www.nrc.gov/docs/ML18317/ML18317A443.pdf

17. https://www.govinfo.gov/content/pkg/GOVPUB-Y3_N88_2-PURL-gpo24144/pdf/GOVPUB-Y3_N88_2PURL-gpo24144.pdf&ved=2ahUKEwjP-u7668AxXWAHkGHeK1I6IQFnoECC0QAQ&usg=AOvVaw1e6v9JoaZf_hBWr2iktLG8

Dr. Gordon Thompson has also provided opinions about the safety of the canisters.[18] Dr. Thompson notes that a typical spent fuel container has a comparatively large capacity for holding fuel assemblies and a thin wall. He states that these containers were designed to minimize licensees' short-term expenditures on spent fuel storage. They were not designed to maximize container lifetime; be highly robust during transportation or storage; facilitate monitoring of container integrity or the condition of spent fuel inside a container; nor are they suitable for direct emplacement in a repository.

The implications of a possible breach or leak in the canisters is cause for serious concern.

C. The Nuclear Waste Facilities Will Be Located In Areas Subject To Risk From Earthquakes.

Both nuclear waste facilities will be located in areas subject to periodic earthquakes. Several earthquakes with a magnitude of 3 or greater have occurred in the area since 1975. There is a published study conducted by scientists at the University of Texas and Southern Methodist University showing the increased incidence of earthquakes induced by fossil fuel extraction in the Permian Basin, location of the Holtec and ISP sites. Stanford University researchers have documented the existence of prior earthquakes in southeast New Mexico where the Holtec facility would be located. This study confirms the existence of numerous faults in the area in and around the proposed Holtec site.

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18. https://www.nrc.gov/docs/ML18317/ML18317A445.pdf

Fasken Oil and Ranch Ltd and the PBLRO Coalition, Respondents in this action, submitted these scoping comments on the Draft Environmental Impact Statement for the Holtec project:[19]

> The proposed site sits on top of and adjacent to oil and gas minerals to be dev feloped by means of fracture stimulation techniques. Currently, drilling techniques used to extract minerals in the Permian Basin involve drilling horizontally into deep underground formations up to two miles beneath the earth's surface. High pressure fluids are pumped into the wells, in some cases exceeding twelve thousand pounds per square inch. This pressure is powerful enough to fracture the surrounding rock thus releasing the oil and gas. The pressure creates fissures and cracks beneath the surface. And, at this time, there are oil and gas operators testing a new technique of simultaneously drilling and fracturing up to 49 horizontal wellbores in a single section of land. Either the traditional or new and unproven drilling technique, involving more than 20,000,000 bbls of water and sand, could conceivably be utilized to inject into and withdraw from the rock formation beneath and surrounding the Holtec site. Hydraulic fracturing beneath and around Holtec should give the NRC pause and is sufficient reason not to proceed.

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19. https://nuclearactive.org/wp-content/uploads/2019/08/Holtec-Answer-to-Fasken-Oil-8-26-19.pdf

Clearly, it is extremely concerning and significant that highly radioactive material would be stored where subsurface fracturing for oil and gas make it vulnerable to earthquakes.

D. Both Holtec And ISP Propose A Policy Of Returning Damaged Or Leaking Containers Of Spent Nuclear Fuel To The Point Of Origin.

As proposed by Holtec and ISP, 160,000 tons or more of radioactive waste would be transported from all over the country to the storage facilities in canisters filled with the waste at the reactor sites. Holtec and ISP further propose a "start clean/stay clean" policy to return to the originating reactor site any canisters that are leaking or damaged. The problem with "start clean/stay clean" is that arriving and potentially dangerous canisters would be dispatched back to their point of origin with no attempt to make them any safer than when they arrived at the storage facilities. Neither Holtec nor ISP would maintain any technological means of removing broken or damaged fuel from the transport capsules on the spot. Instead, they would knowingly subject people and the physical environment along the transportation routes to an additional risk of radiation exposure from casks or canisters with identified problems that could cause dangerous leakage.

The significance of transporting the waste across the country was discussed above in sections A and B. The risk is even greater if the canisters being transported are known to be defective or leaking and the transport mileage is doubled by returning the spent fuel to its point of origin. The *Amici* do not believe the NRC has

ever before approved a license for a project with such a significant inherent risk.

An alternative to transporting the defective or leaking canisters back to the place of origin is known as a dry transfer system (DTS). A DTS is an enclosed, largely robotic system that would mechanically unload a canister of spent fuel and transfer it into a new canister. DTS technology is expensive. There literally is no active such mechanism in existence at any nuclear reactor site in North America. Likely because of the expense, neither ISP nor Holtec plan to have DTS capability at their proposed storage facilities for at least the first 100 years of operations. Apparently the reasoning of the NRC and the private facility operators is that it is better to multiply the dangers of spent fuel return shipments than rationally provide a means to ensure public safety and protect the physical environment.

The "start clean/stay clean" policy also belies the truth about transport containers for spent fuel. The NRC, ISP, and Holtec cannot credibly assert that certification of the canisters means they are safe. If they were, and would never leak, that policy would not be necessary.

CONCLUSION

The facts and issues in this case come within the ambit of this Court's decisions in *West Virginia v. EPA* and *Loper Bright Enterprises v. Raimondo*. Designating and licensing two unique facilities that are expected to provide stable temporary storage for perhaps centuries of the largest concentrations of highly radioactive irradiated nuclear waste on earth is a "major question" which deserves the full attention of the Supreme Court. The demonstrated *ad hoc* nature of the licensing pathway created by the Nuclear Regulatory Commission supplies the basis for the Court to step in and determine exactly what room there is in federal law for to build and operate such facilities. Therefore, the decision of the Fifth Circuit below should be affirmed.

Respectfully submitted,

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