

Oral Argument Not Yet Scheduled

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

NOS: 21-1048, 21-1055, 21-1056, 21-1179, 21-1227, 21-1230, 21-1231, and
21-1151

SIERRA CLUB, 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,

Petitioners,

v.

UNITED STATES NUCLEAR REGULATORY COMMISSION, and
UNITED STATES OF AMERICA,

Respondents.

On Petition for Review of a Decision of the United States Nuclear
Regulatory Commission

PETITIONERS' OPENING BRIEF (PROOF)

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CERTIFICATE AS TO PARTIES, RULINGS AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), Petitioners respectfully certify as follows:

(A) Parties and Amici: Since this action involves the direct review of a final agency decision, there were no proceedings before the district court.

The parties, intervenors, and known amici before this Court are as follows:

- Parties: (1) Sierra Club, 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, and Sustainable Energy and Economic Development Coalition – Petitioners

(2) United States Nuclear Regulatory Commission and United States of America – Respondents

- Intervenors: Interim Storage Partners
- Amici: None
- Corporate Disclosure Statement

SIERRA CLUB

Sierra Club is a non-profit corporation incorporated in the State of California. Sierra Club has no parent corporation and no publicly held corporation owns any stock in Sierra Club.

CITIZENS FOR ALTERNATIVES TO CHEMICAL CONTAMINATION

Petitioner Citizens for Alternatives to Chemical Contamination (CACC) is a grassroots nonprofit environmental education and advocacy organization headquartered in central Michigan with 150 members. CACC has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

CITIZENS' ENVIRONMENTAL COALITION

Petitioner Citizens' Environmental Coalition has about 5000 members and educates people in western New York State of threats to members' health, public health and the environment. CEC seeks shutdown of New York's aging nuclear power reactors and supports sustainable energy alternatives. CEC has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

DON'T WASTE MICHIGAN

Petitioner Don't Waste Michigan is a 30-year-old grassroots-oriented

Michigan nonprofit corporation that has opposed various incarnations of nuclear power, from commercial nuclear power plants to policy and practical plans for disposal of radioactive waste, and its members and engages in public education and legal and administrative advocacy in licensing proceedings. Don't Waste Michigan has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

NUCLEAR ENERGY INFORMATION SERVICE

Petitioner Nuclear Energy Information Service (NEIS) is a non-profit organization committed to ending nuclear power in this country and worldwide. Located in Chicago, Illinois with over 200 members, NEIS builds grassroots, nonviolent opposition to nuclear power; and advocates sustainable energy alternatives. NEIS has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

PUBLIC CITIZEN, INC.

Petitioner Public Citizen, Inc. is a nonprofit consumer advocacy organization that defends democracy, resists corporate power and works to ensure that government works for the people and not for big corporations. The organization has 400,000 members and supporters throughout the

country, is headquartered in Washington, D.C. and maintains a branch office in Austin, Texas. Public Citizen has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

***SUSTAINABLE ENERGY AND ECONOMIC DEVELOPMENT
COALITION***

Petitioner Sustainable Energy and Economic Development (SEED) Coalition is a grassroots organization with 2000 members, mainly in Texas. SEED is located in Austin, Texas and advocates for clean air and clean energy, solar and wind development, and opposes continued coal burning. SEED Coalition works to protect its members and the general public from radiological injury. SEED has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

SAN LUIS OBISPO MOTHERS FOR PEACE

Petitioner San Luis Obispo Mothers for Peace (SLOMFP) is a non-profit organization based in California with 1,400 supporters and 50 formal voting members that historically has opposed the dangers posed by Diablo Canyon Nuclear Plant, nuclear weapons, and radioactive waste. SLOMFP promotes peace, environmental and social justice, and renewable energy, and measures to protect its members' and public health from radiological injury.

SLOMPF has 1,400 supporters and 50 formal voting members. SLOMPF has no parent company and no publicly-held company has a 10% or greater ownership interest (such as stock or partnership shares) in it.

(B) Rulings Under Review: The Commission's Memorandum and Order CLI-20-15, issued on December 17, 2020; and the issuance of the license by the NRC to build and operate the WCS Consolidated Interim Storage Facility, issued on September 13, 2021, and published in the Federal Register at 86 Fed. Reg. 51,926 (Sept. 17, 2021).

(C) Related Cases: Beyond Nuclear v. NRC, No. 21-****, and Fasken **** v. NRC, No. 21-****.

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GLOSSARY

AEA – Atomic Energy Act
APA – Administrative Procedure Act
ASLB – Atomic Safety and Licensing Board
BDBE – Beyond-Design-Basis Event
CEQ – Council on Environmental Quality
CISF – Consolidated Interim Storage Facility
DBT – Design-Basis Threat
DEIS – Draft Environmental Impact Statement
DOE – Department of Energy
DTS – Dry Transfer System
EA – Environmental Assessment
EIS – Environmental Impact Statement
EJ – Environmental Justice
ER – Environmental Report
FONSI – Finding of No Significant Impact
GEIS – Generic Environmental Impact Statement
GTCC – Greater Than Class C Radioactive Waste
HOSS – Hardened On-Site Storage System
ISFSI – Independent Spent Fuel Storage Installation
ISP – Interim Storage Partners
LLRW – Low Level Radioactive Waste
MOX – Mixed Oxide Nuclear Fuel
MTU – Metric Tons of Uranium
NEPA – National Environmental Policy Act
NRC – Nuclear Regulatory Commissioners
NWPA – Nuclear Waste Policy Act
NWTRB – Nuclear Waste Technical Review Board
ROD – Record of Decision
SEIS – Supplemental Environmental Impact Statement
SAR – Safety Analysis Report
SER – Safety Evaluation Report
SNF – Spent Nuclear Fuel
TAD – Transportation, Aging, and Disposal Canisters
TSC – Transportation Storage Canisters
WCS – Waste Control Specialists

JURISDICTION

These Petitioners adopt the jurisdictional statement in the Brief of Beyond Nuclear in this case.

STATEMENT OF THE ISSUES

I. Standard of Review.

II. The NWPA Prohibits the Licensing of the Proposed CIS Facility.

III. The NRC Did Not Adequately Consider the Risks and Impacts of Transporting Spent Nuclear Fuel to the ISP Facility.

IV. The NRC Did Not Adequately Consider the Risk of Earthquakes and Other Impacts from Oil and Gas Drilling.

V. The NRC Did Not Adequately Consider the Impacts to Groundwater from the ISP Facility.

VI. The NRC Allowed an Inadequate Examination and Evaluation of Alternatives.

VII. The NRC Did Not Adequately Consider the Impacts to Wildlife from the ISP Facility.

VIII. The NRC Did Not Adequately Consider the Impacts of Long-Term Storage of Spent Fuel at the ISP Facility.

IX. The EIS Does Not Contain An Adequate Analysis of Long Term Storage at the CISF.

X. The EIS Does Not Discuss That the CISF Is Illegal Under the Nuclear Waste Policy Act.

XI. The EIS Does Not Adequately Discuss the Impacts of Transportation of the Nuclear Waste to the CISF.

XII. The EIS Presents an Inadequate Discussion of Alternatives.

XIII. The CISF Will Have an Impact on Geology and Groundwater That Is Not Adequately Examined or Analyzed in the EIS.

XIV. The EIS Conducts an Inadequate Discussion of the Likelihood and Impacts of Earthquakes on the CISF.

XV. The EIS Does Not Contain an Adequate Discussion of the Ecological Impacts of the CISF.

XVI. The EIS Conducts an Inadequate Discussion of Radiological Impacts.

STATUTES AND REGULATIONS

The statutes and regulations relevant to this case are set out in the attached addendum.

STANDING

The basis for Petitioners' standing is set forth in the Separate Addendum.

STATEMENT OF THE CASE

1. Procedural History

Interim Storage Partners (ISP) submitted to the Nuclear Regulatory Commission (NRC) an application to construct and operate a consolidated interim storage facility (CISF) in Andrews County, Texas (Index 3)(App. p.). The Petitioners in this action petitioned to intervene in the NRC licensing process and submitted

numerous contentions, pursuant to the procedure in 10 C.F.R. § 2.309 (Index 57, 61)(App. p.).

Petitioners' contentions were heard by an Atomic Safety and Licensing Board (ASLB). The ASLB ruled that Sierra Club had standing but no admissible contentions, and that the other Petitioners did not have standing nor any admissible contentions (Index 126)(App. p.). Petitioners appealed the ASLB decisions to the NRC. The NRC affirmed the ASLB decisions (Index 218, 222)(App. p.).

Petitioners sought judicial review in this Court.

The NRC eventually issued a draft Environmental Impact Statement (EIS) for the ISP project (Index 327)(App. p.). Petitioners and many others commented on the draft EIS (Index 1643, 1787, 1616)(App. p.). The NRC rejected those comments, issuing a final EIS and a Record of Decision (ROD)(Index 355, 359)(App. p.). Petitioners sought judicial review challenging the EIS and the ROD.

2. Statement of the Facts

ISP proposes to construct and operate a CISF in Andrews County, Texas. The facility would store 40,000 tons of nuclear waste. The waste would be transported from nuclear reactors around the country, primarily by rail. Members of the Petitioners' organizations would be within the area of radiation exposure if an incident of radiation release occurred during transportation.

ISP plans to store the radioactive waste at the CISF for 60-100 years. And if there is no permanent repository in that period of time, the period of storage at ISP would be even longer, without the protections of a permanent repository.

Other facts will be set forth in the argument to follow.

SUMMARY OF THE ARGUMENT

Petitioners sought to intervene in the NRC licensing procedure and raised contentions which are discussed in Issues II through X below. Petitioners also participated in the NRC's NEPA process by submitting comments, forming the basis for Issues XI through XVIII.

In Issues II and XI Petitioners adopted the arguments of Beyond Nuclear asserting that the ISP CISF is illegal under the NWPA.

Issues III and XII show the NRC licensing proceeding and the EIS insufficiently considered impacts of transporting nuclear waste from reactors to the CISF. In the licensing proceeding the NRC incorrectly considered risks of transportation and claimed transportation impacts were not within the scope of the licensing proceeding. But transportation of the waste is an integral part of the project and cannot be segmented from it. In the EIS the NRC insufficiently considered risks inherent in transporting the waste to the CISF. The EIS ignores a report from the NWTRB concluding that radioactive waste cannot be safely moved until at least

2060, or perhaps not until 2100, long after the CISF would commence operation. Nor does the EIS show what routes will be taken to transport the waste although likely routes are well known.

Issues IV and XV argue the NRC licensing proceeding and the EIS inadequately discussed the risk of earthquakes to the CISF. Fracking for oil and gas in the area have induced earthquakes that will impact the CISF. Petitioners presented recent studies and other information showing that impact.

Issues V and XIV argue the NRC licensing proceeding and the EIS did inadequately consider impacts to groundwater. Evidence showed the Ogallala Aquifer is below the CISF and the groundwater is more shallow than ISP or the EIS states. A professional geologist and hydrologist explained the impacts to groundwater from the CISF.

Issues VI and XIV argue the NRC licensing proceeding and the EIS inadequately considered alternatives to the CISF project. The site selection process was flawed so other appropriate sites were not considered. And the alternative of HOSS was not considered.

Issues VII and XVI argue the NRC licensing proceeding and the EIS inadequately considered impacts of the CISF on wildlife. Petitioners identified two

lizard species that are legally protected. Neither the NRC licensing proceeding nor the EIS required a proper survey to determine if those species would be impacted.

Issues VIII and X argue that the NRC licensing proceeding and the EIS did not adequately consider impacts of long-term storage at the CISF. The storage containers are licensed for 20 years, but the CISF will be licensed for at least 40 years or perhaps for 60-100 years. And if a permanent repository is never established, the CISF could become a *de facto* permanent repository.

Issue XVII argues the EIS conducted an inadequate discussion of radiological impacts. The EIS just adopts the statements in the ISP ER without any independent analysis. The NRC had not yet issued its own SER.

ARGUMENT

I. STANDARD OF REVIEW.

The APA requires this Court to hold unlawful and set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. 5 U.S.C. § 706(2)(A); *NRDC v. NRC*, 879 F.3d 1202 (D.C. Cir. 2018). Agency action is arbitrary and capricious "if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, [or] offered an explanation for its decision that runs counter to the evidence before the agency." *Motor Vehicle Mfrs.*

Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983).

The NRC found all of the Petitioners' contentions inadmissible. That decision must be viewed in light of the NRC's own standards for contention admissibility, pursuant to 10 C.F.R. § 2.309(f) (addendum).

The NRC has determined that the burden on a petitioner in stating its contentions is not heavy. In *Dominion Nuclear Conn., Inc. (Millstone Nuclear Power Station, Units 2 & 3)*, CLI-01-24, 54 NRC 349, the NRC described the contention admissibility standards as "insist[ing] upon some 'reasonably specific factual and legal basis' for the contention." *Id.*, 54 349,359. Petitioners are required only to 'articulate at the outset the specific issues they wish to litigate.' *Id.* at 359.

The NRC and the courts have also held that the burden of persuasion is on the licensee, not the petitioner. The petitioner only needs to "com[e] forward with factual issues, not merely conclusory statements and vague allegations." *Northeast Nuclear Energy Company*, 53 NRC 22, 27 (2001).

In *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 554 (1978), the Supreme Court affirmed the NRC in finding the proper standard required intervenors to simply make a "showing sufficient to require reasonable minds to inquire further," a burden the NRC found to be significantly less than that of making

a *prima facie* case.

Regarding Petitioners' NEPA claim, NEPA does not provide a private right of action, so the agencies' compliance with NEPA is reviewed under the Administrative Procedure Act ("APA"). *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017) .

Petitioners emphasize that their NEPA claims are distinct from their claims raised in the NRC's administrative licensing proceedings. The agency has an independent obligation to comply with NEPA and NEPA's established procedures, which afford rights to public comments and impose independent procedural obligations on the agency. *Brodsky v. NRC*, 704 F.3d 113 (2d Cir. 2013).

II. THE NWPA PROHIBITS THE LICENSING OF THE PROPOSED CIS FACILITY.

Petitioners adopt the argument on this issue in the Brief of Beyond Nuclear in this case.

III. THE NRC DID NOT ADEQUATELY CONSIDER THE RISKS AND IMPACTS OF TRANSPORTING SPENT NUCLEAR FUEL TO THE ISP FACILITY.

10 C.F.R. § 72.108 requires a nuclear waste storage facility to be evaluated regarding impact from the transportation of the waste. In its contention 4 (Index 57) (App. p.), Sierra Club referred to a report by Dr. Marvin Resnikoff and Matthew Lamb, *Worst Case Credible Nuclear Transportation Accidents: Analysis for Urban*

and Rural Nevada (2001). That report determined the consequences of a transportation accident. Dr. Resnikoff also cited recent information about rail fires and expanded traffic of oil tanker cars (Index 57) (App. p.). Dr. Resnikoff stated that the ISP ER did not take this new information into account.

Contention 4 stated that Table 4.2-9, Estimated Dose and Dose-Risk for Loss of Shielding Accidents) (Index 57)(App. p.), underestimated the doses of radiation from a rail accident involving radioactive waste.

Sierra Club also relied on a declaration by Dr. Gordon Thompson (Index 70)(App. p.). Dr. Thompson's declaration describes events and impacts that can occur during transport of the waste to the CISF. He stated that rail accidents would result in radiation exposure to members of the public and radioactive contamination of the environment. The ER, 4.2.6 (Index 235)(App. p.), inadequately discusses the issues Dr, Thompson raised.

The ASLB ruling (Index 126)(App. p.) stated Sierra Club did not dispute section 4.2.8 of the ER (Index 235)(App. p.). It was clear from the contention, however, Sierra Club was disputing the adequacy of section 4.2.6 of the ER. Sierra Club was very specific in identifying the portion of the ER that was inadequate. Section 4.2.8 did not rehabilitate the inadequacies of section 4.2.6 of the ER.

ISP's license application claimed transportation issues were not part of the application. But ISP included a map, ER Figure 2.2-4 (Index 235)(App. p.), identifying all expected rail routes. This suggests the scope of the ER includes transportation.

Separating transportation analysis from storage creates segmentaion. Segmentation "circumvent[s] NEPA by breaking up one project into smaller projects and not studying the overall impacts of the single overall project." *Stewart Park & Reserve Coal., Inc. (SPARC) v. Slater*, 352 F.3d 545, 559 (2d Cir. 2003).

The ASLB held it was impossible to know what customers ISP might expect and shipping routes would be unknown. The Board said that responsibility for transportation of spent nuclear fuel from commercial reactors to the proposed CISF belonged to the SNF title holders, not with ISP (Index 126) (App. p.).

The 20-year shipping campaign involves at least 3,000 deliveries of waste to the CISF. Likely transportation routes, especially by rail, are easily discernible. The ASLB wrongfully denied consideration of environmental effects along hundreds of miles of transportation corridors containing some 200,000,000 people within 50 miles of the routes. 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.” Continued Storage GEIS, § 3.15, (Index)(App. P,). The transportation impacts of the overall ISP project are of high significance to completion of the storage project and must be addressed pursuant to 10 C.F.R. § 51.45(b)(1).

Under NEPA an “agency need not foresee the unforeseeable, . . . [r]easonable forecasting and speculation is . . . implicit in NEPA. . . .” *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092, 156 U.S.App. D.C. 395 (D.C. Cir. 1973). But an agency must fulfill NEPA investigation and disclosure duties to “the fullest extent possible.” *Id.*

Here, there will be no CISF without transporting waste to it. Environmental review must include all “connected actions.” 40 C.F.R. § 1508.25(a)(1). Projects lack independent utility when it would be irrational, or at least unwise, to build one without the other. *Trout Unlimited v. Morton*, 509 F.2d 1276 (9th Cir. 1974). “Connected actions” have to be addressed in a single EIS. *Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir. 1985).

IV. THE NRC DID NOT ADEQUATELY CONSIDER THE RISK OF EARTHQUAKES AND OTHER IMPACTS FROM OIL AND GAS DRILLING.

The ER and SAR must adequately evaluate the earthquake potential of the proposed site. 10 C.F.R. §§ 51.45 and 72.103(f)(1). The ER, 4.3 (Index 235)(App. p), does not even discuss the impact of earthquakes.

A study by the University of Texas and Southern Methodist University showed increased incidents of earthquakes induced by fossil fuel extraction in the area of the CISF. (Index 57)(App. p.). The record includes a map of intense oil drilling in the area (Index 57)(App. p.).

And there was a recent study by Stanford University documenting prior earthquakes in west Texas, and the existence of numerous faults in and around the CISF site (Index 60)(App. p.).

The ER, 3.3.3-3.3.4 (Index 235)(App. p.), discusses vibratory ground motion and faulting and concludes there is essentially no chance of an earthquake in the area. The ER makes only passing mention of “some occurrences of induced seismicity have also proven to be spatially correlated to active hydrocarbon production in the region.” There is no discussion of the impact of recent fracking in the area as documented in the recent studies .

The ASLB said the ER adequately discussed the potential for earthquakes, but merely mentioning an issue in an ER is not an adequate discussion. Fracking activity is taking place near the ISP site. It is certainly possible that fracking will be undertaken directly beneath the site. There is no indication in the ER or SAR of legal controls over present or potential oil and gas drilling directly beneath the site.

ISP's application lacks analyses of ISP's claimed mineral rights. The ASLB missed Petitioners' point that "The omission of information about legal title to subsurface mineral rights at WCS means there is no certainty that fracking and possibly waste well injection disposal activities will be prohibited underneath the WCS site."

The ASLB dismissed the contention, accusing Petitioners of not reading the available information in the ER and other documents (Index 126) (App. p.). But the ASLB ignored the reality that site control is needed to protect the SNF stored for a century or more at ISP's facility. The failure to investigate, project and disclose prospective geological changes due to oil and gas extraction that will occur during CISF operations creates a valid contention.

V. THE NRC DID NOT ADEQUATELY CONSIDER THE IMPACTS TO GROUNDWATER FROM THE ISP FACILITY.

An ER is required to address all environmental impacts from a proposed project. 10 C.F.R. § 51.45. This would include impacts to groundwater resources.

The ISP ER, 3.4.14.1 (Index 235)(App. p.), claims the Ogallala Aquifer does not lie under the CIS site. However, maps of the aquifer clearly show that the aquifer does, in fact, lie under the CIS site (Index 60)(App. p.). Existence of the Ogallala Aquifer is also confirmed by the declaration of Dr. Patricia Bobeck, a professional geologist (Index 59)(App. p.). In addition, a 2012 report from George Rice, a professional hydrologist, confirms that the aquifer extends at least to the northwest corner of the WCS LLRW site (Index 59)(App. p.). That is exactly the footprint of the proposed CISF. The false statement in the ER denying the existence of the aquifer renders the rest of the discussion of groundwater impacts meaningless. The SAR at page 2-17 (Index 235)(App. p.) makes the same incorrect claim and must also be rejected.

The ER and SAR also incorrectly state that the water saturation point beneath the CISF site is at least 225 feet (SAR, p. 2-17; ER, p. 3-23) (Index 235)(App. p.). An official map of the area, however, shows Andrews County to be in an area where the saturated thickness is 50-100 feet and perhaps less than 50 feet (Index 60)(App. p.). It is important to know how susceptible the groundwater is to contamination from a leak of radioactive material from the CISF.

Dr. Bobeck concluded the ER inadequately defines the geologic units present at the ISP site and their properties or extents. (Index 59)(App. p.). The ASLB rejected this contention, claiming Sierra Club had not shown how the radioactive material would reach the groundwater (Index 126)(App. p.). The ASLB further held that Sierra Club was challenging the certificate of compliance for the containers, which would be out of scope of this proceeding (Index 126)(App. p.). The ASLB erred on both points.

First, Sierra Club cited NRC's own documents to demonstrate the likelihood of damaged containers due to high burnup fuel. In *Standard Review Plan for Spent Fuel Dry Storage Facilities, Final Report*, NUREG-1567, the NRC said "there is limited data to show that the cladding of spent fuel with burnups greater than 45,000 Mwd/MTU will remain undamaged during the licensing period."

In NRC, *Rulemaking Issue, Notation Vote, Memorandum from R. W. Borchardt* (2012) and IAEA, *Impact of High-Burnup Uranium Oxide and Mixed Uranium-Plutonium Oxide Water Reactor Fuel on Spent Fuel Management* (2011), it is stated that high burnup fuel can cause the zirconium cladding of the fuel rods to become unreliable as a barrier to prevent the escape of radioactivity, especially during long periods of dry storage. High burnup fuel reduces the fuel cladding thickness, making release of radioactivity more likely.

The record, therefore, shows how the radioactive material in the containers would be released to the groundwater. An intervenor need not prove its case at the admissibility stage of the proceedings, but need only present “some minimal factual and legal foundation in support” of the contention. *U.S. Dep’t. Of Energy (High Level Waste Respository)*, LBP-09-06 (May 11, 2009).

Second, Sierra Club is not challenging the certificate of compliance for the container, but is challenging the adequacy of the discussion in the ER regarding impacts to groundwater, which is certainly within the scope of this licensing proceeding.

VI. THE NRC ALLOWED AN INADEQUATE EXAMINATION AND EVALUATION OF ALTERNATIVES.

The purpose of the ER is to discuss and analyze the environmental impacts of various alternatives. 10 C.F.R. § 51.45. NRC Guidance on environmental reports, 6.2.1 (Index)(App. p.), requires a detailed description of alternatives. The alternatives analysis is the “heart of the environmental impact statement.” 40 C.F.R. § 1502.14. NEPA requires that an environmental review “[r]igorously explore and objectively evaluate all reasonable alternatives” and “[d]evote substantial treatment to each alternative considered in detail” *Id.*

The no-action alternative in the ISP ER (Index 235)(App. p.) is incomplete because it does not acknowledge safer storage methods at reactor sites, such as hardened on-site storage (“HOSS”), nor does it acknowledge the NRC’s Continued Storage Rule, 10 C.F.R. § 51.23, that concludes that waste can be safely stored at reactor sites indefinitely. There are at least four alternatives to the proposed CISF project which are neither recognized nor addressed in the ER.

Petitioners identified five separate unconsidered alternatives: (1) the project, but with a dry transfer system (DTS); (2) the project, but with an emergency response plan including preparations for emissions mitigation; (3) CISF design modification to prevent “malevolent” acts; (4) Federal Government control of the ISP facility; and (5) implementation of hardened onsite storage (HOSS) at reactor sites.

The ASLB erred in stating, “Petitioners do not explain why these five alternatives must be evaluated by ISP in its ER (Index 126)(App. p.). Petitioners do not have to explain; the existence of reasonable but unexamined alternatives renders an EIS inadequate. *DuBois v. U.S. Dept. of Agric.*, 102 F.3d 1273, 1287 (1st Cir. 1996). “[E]valuation of ‘alternatives’ mandated by NEPA is to be an evaluation of alternative means to accomplish the general goal of an action; it is not an evaluation of the alternative means by which a particular applicant can reach his goals.” *Van Abbema v. Fornell*, 807 F.2d 633, 638.

NEPA requires the agency to “study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS, as well as ‘significant alternatives’ suggested by other agencies or the public during the comment period.” *Roosevelt Campobello Int’l Park Comm’n v. EPA*, 684 F.2d 1041, 1047 (1st Cir. 1982). An alternative “meaningfully compatible with the time-frame of the needs to which the underlying proposal is addressed” is logically a “reasonable alternative.” *Carolina Env’tl. Study Grp. v. U.S.*, 510 F.2d 796, 801 (D.C. Cir. 1975).

VII. THE NRC DID NOT ADEQUATELY CONSIDER THE IMPACTS TO WILDLIFE FROM THE ISP FACILITY.

The ER states that two lizard species of concern, the Texas horned lizard and the dunes sagebrush lizard, have been seen at the ISP site or may be present (Index 235)(App. p.). 10 C.F.R. § 51.45 requires that an environmental report must contain a discussion of the environment affected by the project, including discussion of the various species present and their habitat. The NRC’s *Environmental Review Guidance for Licensing Actions Associated With NMSS Programs* (Index)(App. p.), 5.3.5, also directs that the ER must discuss the affected environment and the impacts on the environment, including impacts to important species and their habitats.

The Texas horned lizard and the dunes sagebrush lizard are in the area within a 3.1 mile radius of the ISP site. ER, 3.5.2 (Index 235)(App. p.). More specifically,

the ER, 3.5.4 (Index 235)(App. p.), states that the Texas horned lizard has been reported as being present at the CIS site and the dunes sagebrush lizard might occur there. With no factual support, the ER, 4.5.10 (Index 235)(App. p.), claims that the CIS project will have no impact on the species. That section simply says, “Additionally, the two identified species of concern in the general area, the Texas horned lizard and the [dunes sagebrush] lizard either do not occur on the CISF or are highly adaptable.”

The part of that statement alleging that the two species do not occur in the project area is in direct contradiction of the statement in the ER, 3.5.2 (Index 235)(App. p.). That section states, “Two species of concern, the Texas horned lizard (*Phrynosoma cornutum*) and sand dune lizard (*Sceloporus arenicolus*), occur within the area.”

The second part of the statement in Section 4.5.10 (Index 235)(App. p.), that the species are highly adaptable, is contradicted by the statement in Section 3.5.2 of the ER (Index 235)(App. p.) that the horned lizard is considered threatened because of over-collecting, incidental loss, and habitat disturbance. The dunes sagebrush lizard has a specialized habitat that occurs throughout much of the region of the proposed CISF. These descriptions of the precarious status of the species do not support the assertion that they are highly adaptable.

The ER, 3.4.16 (Index 235)(App. p.), cites several sources in support of the statements in the ER, but the sources were internal reports not available to the public, the NRC Staff, or the ASLB.

NEPA regulations provide that “[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” 40 C.F.R. § 1500.1(b); 40 C.F.R. § 1502.24. The unsupported statements regarding impacts to the protected species do not satisfy these standards.

The ASLB’s initial ruling (Index 126)(App. p.) admitted Sierra Club Contention 13. Sierra Club submitted an Amended Contention 13 (Index 143)(App. p.), based on new information in newly revealed sources. Amended Contention 13 pointed out that the internal studies on which the ER relied were 11-22 years old, were focused on the existing LLRW site, and did not provide any documentation or basis for the conclusion that there would be little or no impact to the habitat or communities because the two lizard species are allegedly not present at the site or are highly adaptable.

In spite of the fact that Amended Contention 13 correctly alleged that the ER, and the belatedly submitted sources, documented the existence or likely existence of the two lizard species on the CIS site, the ASLB held that Amended Contention 13 was not admissible (Index 178)(App. p.).

VIII. THE NRC DID NOT ADEQUATELY CONSIDER THE IMPACTS OF LONG-TERM STORAGE OF SPENT FUEL AT THE ISP FACILITY.

The transportation containers are licensed for a period of 20 years. SAR, 1.1 (Index 235)(App. p.). The ER, 1.2 (Index 235)(App. p.), states that the life of the CIS facility will be 60-100 years, far longer than the 20-year license period.

Even if ISP's hope that the licenses for the containers will be renewed for an additional 40 years, SAR, 1.1 (Index 235)(App. p.), is accurate, that is only a total of 60 years, not the 60-100 years of the expected life of the CISF. The SAR does not indicate why it is confident that the licenses will be renewed. Nor does the SAR indicate what would happen if there is no license renewal.

ISP proposes to "solve" this problem by continuous relicensing based on an Aging Management Program. SAR, 1.1 (Index 235)(App. p.). The only discussion of an aging management program in the SAR is in Section 11.5 (Index 235)(App. p.). And that section simply refers to the aging management program for the containers. Even at that, there is no indication that the containers will be relicensed. The fallacy of this whole scheme is that it is assumed that relicensing of the CIS and the containers will be automatic. The ASLB did not address this fallacy.

ISP's plan to not have a dry transfer system (DTS) or other technological means dealing with damaged, leaking or externally contaminated canisters or

damaged fuel in the canisters contradicts the expectations of the Continued Storage GEIS, and the unanalyzed risks, and increased possibilities of minor to severe radiological accidents must be addressed. There is no plan for radiation emissions mitigation or radioactive releases at the CISF site. These refusals to contingently prepare for radiological problems at the site are a byproduct of ISP's "start clean/stay clean" policy, are unrealistic and must be addressed in licensing conditions.

Petitioners need not prove the contention at this stage, but must only allege some credible foundation for it. *Connecticut Yankee Atomic Power Co.* (Haddam Neck Plant), LBP-01-21, 54 NRC 33, 47-48 (2001). They need merely to provide sufficient alleged factual or legal bases to support the contention now. *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619, 623 (2004). The AEA requires only "a minimal showing that material facts are in dispute, thereby demonstrating that an 'inquiry in depth' is appropriate." *Gulf States Utilities Co.*, 40 N.R.C. 43, 51 (1994).

IX. The EIS Does Not Contain an Adequate Analysis of Long Term Storage at the CISF.

The purpose and need statement in the EIS, p. 1-3 (Index 355)(App. p.), calls for storing radioactive waste until a permanent repository is available, but there is no

current plan for a permanent repository and its development is delayed indefinitely. So the CISF could become a *de facto* permanent repository.

Environmental impacts of permanent storage must be addressed in the EIS. In *New York v. NRC*, 681 F.3d 471, 478 (D.C. Cir. 2012), the NRC's former waste confidence decision was held to violate NEPA because it did not address the possibility of permanent storage. But the ISP EIS does not even consider the likelihood a permanent repository will never be developed. Instead, the NRC limits the EIS scope to the initial 40-year license, assumes subsequent relicensings, but does not say how many there might be nor the outcome if a future relicensing were denied, leaving at least 40,000 MTU of radioactive waste stranded.

The definition of purpose and need must be reasonable. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190 (D.C. Cir. 1991). Here, it must address the likelihood of permanent storage, and not just the possibility of a permanent repository appearing in the future. An unfounded and speculative assumption cannot reasonably serve as the purpose and need.

The EIS at p. 2-1 – 2-2 (Index 355)(App.), is confusing because it describes the proposed action as a license for 40 years to store an aggregate of 40,000 MTU of radioactive waste. But the EIS inconsistently describes the proposed action as a license for an initial 5,000 MTU for a period of 40 years, as though the 7 subsequent

expansions are not part of the proposed action. Yet, the EIS supposedly analyzes the impacts of a completed 40,000 MTU because that is what ISP described as the project.

The confusion is redoubled where the EIS states at page 2-2 (Index 355)(App.) that ISP anticipates obtaining a license extension of 20 more years, for a total of 60 years. The EIS claims ISP would have to relicense the facility for 20 additional years. But it is likely that the NRC's discretion would vanish; the agency would be forced to grant relicensing to avoid stranding radioactive waste.

So the proposed action as described in the EIS is premised on two bets: that ISP will receive a relicensing, and even if the relicensing occurs, a permanent repository will be opened within 60 years. The prospect that neither of these scenarios will occur is not addressed in the EIS.

The EIS, p. 2-5 – 2-6 (Index 355)(App. p.), assumes the safety of the canisters for long-term storage. But they might have to be safe beyond the 40-year initial license period to 60-100 years, or indefinitely, if no permanent repository is ever developed.

According to ISP's SAR (Index 235)(App. p.), the cask systems to be used at the facility are licensed for 20 years, although the life of the facility will exceed 20 years. Presumed relicensing without assuring the integrity of the canisters would be

a rubber stamp. The federal Nuclear Waste Technical Review Board reported, in *Geologic Repositories: Performance Monitoring and Retrievability of Emplaced High-Level Radioactive Waste and Spent Nuclear Fuel* (Index)(App. p.), that there is no plan to address cracks and leaks nor to maintain and monitor the fuel and its containment against leaks, explosions or criticalities.

High burnup fuel also creates problems for long-term canister integrity. High burnup fuel is dangerously unpredictable and unstable in storage. It is twice as radioactive and over twice as hot as regular nuclear fuel and causes the cladding around the fuel to become thinner and more brittle, inducing cracking. Consequently, containers loaded with this fuel are more likely to leak radioactive material. Yet the EIS contains no discussion of cladding failure as an impact of high burnup fuel.

According to 10 C.F.R. § 72.122(h)(1), spent fuel cladding must be protected during storage against rupturing from degradation and to minimize operational safety problems when it is removed from storage. Gross cladding defects are possible at all phases of storage.

Sierra Club's comments on the DEIS include a the declaration of Robert Alvarez (Index 68)(App. p.), which the Court should review for analysis of additional issues concerning high burnup fuel storage. A second expert, Dr. Gordon

Thompson, stated the typical container is not suitable for long-term storage (Index 70)(App.).

There will be an expensive and logistically complicated “repackaging” of SNF from the transport canisters into standardized canisters for disposal in a geological repository. However, the NRC declined to require a Dry Transfer System (DTS) during the initial 40-year license period, even though it might be needed anytime to remediate or repackage SNF from troubled containers. DTS capability is the only way to deal with externally contaminated, damaged or leaking containers. ISP proposes to address problematic containers with a “Start Clean/Stay Clean” policy. ISP expects all containers to be leak-free upon their arrival, but does not explain what happens to SNF that is rejected and left behind at the reactor sites, nor what happens to arriving canisters or casks with external contamination or leakage. The EIS, 4-85 (Index 355)(App.), claims corrective actions will be taken. However, unspecified “corrective actions” fail NEPA’s public disclosure requirement.

ISP plans to have a plan, supported by unrealistically perfect SNF management expectations. There will be no genuine “corrective action” available for serious container failures. Even if canisters first arrive in acceptable condition, age-related degradation over time is inevitable. Absent a DTS, catastrophic releases of hazardous radioactivity are quite imaginable.

Robert Alvarez's expert testimony during the licensing proceeding (Index 68)(App. p.) revealed a DOE policy that "waste package sizes for the geologic media under consideration ... are significantly smaller than the canisters being used for on-site dry storage by the nuclear utilities."

NEPA and its regulations require an analysis and disclosure of any irreversible and irretrievable commitment of resources in the proposed action. 42 U.S.C. § 4332; 40 C.F.R. § 1502.16. The overall impact from implementing a large-scale program is that *implementation of a massive repacking-and-transportation campaign determines and restricts options from the time of implementation forward*. "Once there has been 'an irretrievable commitment of resources' in the technology development stage, the balance of environmental costs and economic and other benefits shifts in favor of ultimate application of the technology." *Scientists' Institute for Public Information, Inc. v. Atomic Energy Commission*, 481 F.2d 1079, 1090 (D.C. Cir. 1973). The EIS "must therefore take a pragmatic and realistic view of the scope of the action being contemplated." *Swain v. Brinegar*, 542 F.2d 364, 369 (7th Cir. 1976).

"[O]nly if the harm in question is so 'remote and speculative' as to reduce the effective probability of its occurrence to zero may the agency dispense with the

consequences portion of the analysis.” *New York v. NRC*, 681 F.3d 471, 482 (D.C.Cir. 2012).

There being no disclosure in the EIS of details of this controversial repackaging plan, and no identification of its environmental dangers and human health implications, the EIS is not “supported by evidence that the agency has made the necessary environmental analyses.” 40 C.F.R. § 1502.1.

The site-specific ISP SNF storage facility does not qualify for the exclusions and automatic assumptions conferred by the Continued Storage GEIS. In the EIS (Index 355 at p. 5-14)(App.), the NRC enumerates the Continued Storage GEIS assumptions, based on specific characteristics of the Private Fuel Storage facility in Utah. The key assumptions applicable to ISP are: institutional controls, a dry transfer system, replacement of infrastructure at least every century, and no more than 40,000 tons of waste.

The EIS insists it need not consider environmental impacts beyond the initial 40-year license term, ignoring dissimilarities between the Private Fuel Storage and ISP facilities. EIS at 5-14 (Index 355)(App.). But the Continued Storage GEIS, 5-2, states “the NRC assumes that any proposed away-from-reactor ISFSI [independent spent fuel storage installation] *would likely be similar* to the assumed generic facility . . . from the standpoint of the size, operational characteristics, and location of the

facility. . . .” A DTS system is not a mere “operational characteristic,” but is a physical facility component of the facility. The GEIS clearly expects that at some point there *must* be a DTS. With no DTS, the ISP facility is not protected by the Continued Storage Rule. According to the GEIS, there is no DTS capability anywhere in the United States, but will be needed. EIS at 4-17, 4-79 (Index 355)(App.).

X. The EIS Does Not Discuss That the CISF Is Illegal Under the Nuclear Waste Policy Act.

These Petitioners adopt the argument on this issue in the Brief of Beyond Nuclear in this case.

XI. The EIS Does Not Adequately Discuss the Impacts of Transportation of the Nuclear Waste to the CISF.

Waste will be transported from nuclear reactors throughout the country, affecting people and the environment along the entire length of all routes between the various reactors and ISP. The EIS, at p. 3-8 (Index 355)(App.), states it is reasonable to assume the waste will come from existing reactor sites nationwide. The EIS refers to the rail routes evaluated in the Supplemental EIS for Yucca Mountain and the map of routes, Fig. 2-11 at p. 2-46 (Index 355)(App.). But that map does not show all of the likely routes.

ISP was much more candid about rail routes in its Environmental Report (Index 235)(App. p.), because it reproduced a national map of rail transportation routes. (Figure 2.2-4 at p. 2-71, ISP ER) (Index)(App.).

The NRC acknowledged that ISP “proposes using the national rail network for transportation of SNF” but did not reproduce the national rail route map. The NRC treats the routes as unknown, which defies investigation or discussion under NEPA. EIS at 3-8 (Index 235)(App.).

NRC guidance for determining transportation impacts in the licensing of nuclear reactors (*Preparation of Environmental Reports for Nuclear Power Stations*, Regulatory Guide 4.2, Revision 3) lists easily accessed information, including shipping route data such as distances and population densities en route to storage facilities, and more. The EIS could have accessed this data.

The record includes a report by Dr. James David Ballard. (Index 69)(App. p.). The Court is referred to Dr. Ballard’s report for a detailed analysis.

A Nuclear Waste Technical Review Board report, *Preparing for Nuclear Waste Transportation* (2019), was also provided the ASLB and cautions that increasing use of high-burnup fuel and larger storage casks would require SNF to be cooled longer before shipment to storage. If repackaged into smaller containers, the SNF could be transported to a storage facility by 2060, but if not repackaged, the waste could not

be moved until 2100. So there is no likely scenario under which the waste destined for the ISP CIS facility could be transported there by the 2041 end of the 20-year license period and only barely within the entire initial 40-year licensing period. This is not mentioned in the EIS.

Robert Alvarez, nuclear waste expert, verified in the Holtec CISF proceeding a substantial lack of data regarding potential damage of SNF during transport and that repackaging SNF for transport and disposal is an important missing element regarding the timing and implementation of a national SNF transportation program. Alvarez declaration. (Index ____) (App. ____).

The NRC Staff failed to consider several mitigation measures to improve safety and reduce transport accident risks. For example, the DOE has committed to use dedicated trains for the Yucca Mountain repository that will prioritize SNF delivery. DOE also will use standardized transportation canisters and assumes they will be loaded at reactor sites. The NRC Staff makes no decision where canister loading would occur and proposes low-speed, non-prioritized, trains. EIS at 5-18 (Index 235)(App.).

Physicist Dr. Marvin Resnikoff commented in this proceeding (Index 1723, 1724)(App. P) that the EIS also assumes an unrealistic 10-hour exposure time for emergency workers, which underestimates the time to address train derailments,

particularly accidents involving fires. Some transportation fires have burned for 2 days. High burnup fuel also contains more fission products, which would account for high gamma doses to emergency responders and the general public. None of this was covered in the EIS.

The Staff cited lame excuses for refusing to include the reactor site infrastructure rebuild need in the EIS. ISP EIS p. 8-1 (Index 235)(App. p.). Thus the NRC Staff has concealed potentially needed major infrastructure replacement or improvement of offsite rail and highway resources as well as its cost in order to justify the construction and operation of the ISP CISF.

Transportation of SNF to ISP (and ultimately away from ISP) is the *sine qua non* of the project. But multiple transportation issues have been segmented or excluded from NEPA analysis.

Agencies must consider connected actions within the same EIS. 40 C.F.R. § 1508.25(a)(1), to prevent segmentation “by breaking up one project into smaller projects and not studying the overall impacts of the single overall project.” *Coalition on W. Valley Nuclear Wastes v. Chu*, 592 F.3d 306, 311 (2d Cir. 2009). Connected actions include those that (1) “[a]utomatically trigger other actions which may require environmental impact statements”; that (2) “[c]annot or will not proceed unless other actions are taken previously or simultaneously”; or that (3) “[a]re interdependent parts

of a larger action and depend on the larger action for their justification.” 40 § 1508.25(a)(1).

Separating SNF storage from SNF transportation fails the NEPA “independent utility” test, which asks whether each project would have taken place in the other's absence. *See, e.g., N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1087 (9th Cir. 2011). If so, they have independent utility, and are not considered connected actions. *Id.*, 668 F.3d at 1087-88. But here, without shipment and delivery of SNF and GTCC waste, there is nothing to store at ISP; no independent utility exists.

By effectively segmenting or excluding identification and analysis of transportation matters from the EIS, the NRC Staff is predetermining the outcome of the NEPA stage of ISP's application. Predetermination occurs when an agency irreversibly and irretrievably commits itself to a plan of action that is dependent upon the NEPA environmental analysis producing a certain outcome. *Forest Guardians v. U.S. Fish & Wildlife Serv.*, 611 F.3d 692, 714 (10th Cir.2010). By committing itself to an outcome, “the agency likely has failed to take a hard look at the environmental consequences of its actions due to its bias in favor of that outcome and, therefore, has acted arbitrarily and capriciously.” *Id.* at 713.

The EIS transportation analysis is a shallow glance, not a hard look. The EIS must fulfill and satisfy to the fullest extent possible the EIS requirements of NEPA. 40 C.F.R. § 1502.9(a).

XIII. The EIS Presents an Inadequate Discussion of Alternatives.

An EIS must determine and assess all reasonable alternatives to the proposed action. The alternatives analysis is the “heart of the environmental impact statement.” 40 C.F.R. § 1502.14. The environmental review must “rigorously explore and objectively evaluate all reasonable alternatives.” *Id.* The EIS eliminates from consideration a viable but unexamined alternative and so is inadequate. *Japanese Vill. LLC v. Fed. Transit Admin.*, 843 F.3d 445, 463 (9th Cir. 2016). The alternative rejected is Hardened Onsite Storage Systems (HOSS). According to the EIS, HOSS is: (1) constructing reinforced concrete and steel structures around each waste container; (2) protecting each of these structures with mounds of concrete, steel, and gravel; and (3) spacing the structures over a larger area. Dr. Gordon Thompson documented the benefits of HOSS and explained why an away-from-reactor storage site would be less safe than on-site storage in 2003. *Robust Storage of Spent Nuclear Fuel: A Neglected Issue of Homeland Security* (2003).

The EIS rejects HOSS as an alternative, alleging that it is a general concept and the NRC has not reviewed detailed plans. But HOSS has been detailed since at

least Thompson's 2003 report. A thorough review of alternatives requires the NRC's examination of HOSS.

Rejection of an alternative necessitates plausible rationales from the agency. *All Indian Pueblo Council v. United States*, 975 F.2d 1437 (10th Cir. 1992). The EIS rejects HOSS because it would not satisfy the purpose and need for the project, which is that only a CIS facility is contemplated. But a purpose and need statement cannot be defined so narrowly that only one alternative will satisfy it. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190 (D.C. Cir. 1991). HOSS can accomplish the real purpose and need of long-term storage of SNF. The EIS concedes, at p. 1-3 (Index 235)(App. p.), Since the goal of interim storage is to safely store nuclear waste until, if ever, a permanent repository is developed, HOSS is a reasonable alternative that must be evaluated.

The "evaluation of 'alternatives' mandated by NEPA is meant to be an evaluation of alternative means to accomplish the general goal of an action; it is not an evaluation of the alternative means by which a particular applicant can reach his goals." *Van Abbema v. Fornell*, 807 F.2d 633, 638 (7th Cir. 1986)); also, *Sierra Club v. Marsh*, 714 F.Supp. 539, 577 (D.Me. 1989). The existence of a reasonable, but unexamined, alternative renders the EIS inadequate. See *DuBois v. U.S. Dept. of Agric.*, 102 F.3d 1273, 1287 (1st Cir. 1996), *cert. denied*, 117 S.C. 1567 (1997).

XIV. The CISF Will Have an Impact on Geology and Groundwater That Is Not Adequately Examined or Analyzed in the EIS.

A correct characterization of the geology and groundwater at the CIS site is extremely critical to determining environmental impacts. *Delaware Riverkeeper Network v. FERC*, 753 F.3d 1304 (D.C.Cir. 2014). Geology and groundwater are interconnected. The geology determines the extent to which radiation from the CISF will enter the groundwater and impact the use of that groundwater.

The EIS, p. 3-10 – 3-20 (Index 235)(App. p.), purports to describe the geology and groundwater at the CIS site. However, that discussion does not describe how the geology relates to storage-related issues. The omission incorrectly allows the EIS to conclude that the geologic impacts are small. The EIS relies on the ISP environmental report to a great extent, but the ER is deficient. Patricia Bobeck, a geology PhD., critiqued deficient geological analysis in this licensing proceeding (Index 59)(App. p.). The Court should scrutinize that report for a detailed analysis.

Because the EIS relies on the ISP ER for the site-specific geology and groundwater information, the ER deficiencies described by Dr. Bobeck prove that the EIS is deficient.

XV. The EIS Conducts an Inadequate Discussion of the Likelihood and Impacts of Earthquakes on the CISF.

An EIS must address reasonably foreseeable incidents of earthquakes. *Romer v. Carlucci*, 847 F.2d 445 (8th Cir. 1988).

The discussion of earthquake potential in the EIS, p. 3-20 (Index 355)(App. p.), relies on records from 1975 to January 2015. This historic data misses the earthquake activity more recently caused by fracking for oil and gas. Sierra Club repeatedly advised the NRC of two recent studies (see Section IV above) that confirm an increase in induced earthquakes in the area of the ISP CIS site.

Significantly, the EIS primarily relies on material supplied by ISP, instead of independent information, which is the only way the agency can take NEPA's "hard look."

In discussing the seismic impacts, the EIS at p. 4-27 (Index 355)(App. p.) concludes that facility operations would not cause seismic impacts. The actual question, though, is the likelihood of earthquakes causing impacts to the ISP facility. The EIS fails to address this issue, except to dismiss it based on the faulty and incomplete assessment described above. NEPA requires more than that.

XVI. The EIS Does Not Contain an Adequate Discussion of the Ecological Impacts of the CISF.

An EIS must address impacts to wildlife. *Nat'l. Audubon Soc'y. v. Corps of Engineers*, 991 F.3d 577 (4th Cir. 2021).

The EIS purports to describe and evaluate the impacts to wildlife in the area of the ISP facility. It relies almost exclusively, however, on studies conducted by entities hired by ISP or its predecessor, WCS. Five of the studies listed in the EIS were conducted in 1996-97, 2004, and 2007. Moreover, those studies were related to areas other than the proposed CIS site. The only study addressing the CIS site was in 2018-19, by a firm hired by ISP. The EIS should rely on more independent sources.

The EIS, p. 4-45 (Index 355)(App. p.), concludes that the impacts on wildlife will be small. But the 2019 report obtained by ISP leads to just the opposite conclusion. The survey was conducted in October 2018 and April 2019. It appears that the survey was conducted on only three days each time. Three species are of particular interest: dunes sagebrush lizard, Texas horned lizard, and lesser prairie chicken.

The 2019 report states that mesquite thorn-shrub vegetation is located in the central and southern portions of the CIS site. This is suitable habitat for the Texas horned lizard. Havard (shinnery) oak vegetation occurs in the northern portion of the CIS site and is suitable habitat for the dunes sagebrush lizard and lesser prairie chicken. The maintained grassland provides suitable habitat for the Texas horned lizard and occurs in the central portion of the CIS site. Construction of the CIS

facility would clearly destroy all of this habitat. This fact is not clearly stated in the EIS.

Nor is it significant that none of these species happened to be observed during the three-day surveys in October and April. First of all, these species are threatened or endangered, so naturally they are less likely to be seen since there are so few of them. Second, the October survey would be at a time of year when the two lizard species, cold-blooded reptiles, would be hibernating.

The EIS, p. 4-44 – 4-45, 4-47 – 4-48 (Index 355)(App. p.), relies on proposed mitigation measures recommended to ISP. But what will ensure that ISP will follow those recommendations? Who will enforce ISP's compliance? Who will evaluate whether ISP has complied with the recommendations? Until the EIS addresses those questions, the EIS has not thoroughly evaluated the environmental impacts to wildlife and plants.

XVI. The EIS Conducts an Inadequate Discussion of Radiological Impacts.

Design Events II are associated with off-normal operations that can be expected to occur with moderate frequency, approximately once per year. These events could result in members of the general public being exposed to additional levels of radiation beyond those associated with normal operations. During normal operations and off-normal conditions, the requirements of 10 CFR Part 20 must be

met. In addition, the annual dose equivalent to any individual located beyond the controlled area must not exceed 0.25 mSv [25 mrem] to the whole body, 0.75 mSv [75 mrem] to the thyroid, and 0.25 mSv [25 mrem] to any other organ.

The EIS notes that ISP “evaluated for the proposed CISF (ISP, 2018) for an operating NUHOMS® system included cask handling, transfer vehicle moving, and canister transfer. Off-normal events evaluated for the NAC International (NAC) system components included blockage of half the storage cask air inlets, canister off-normal handling load, failure of instrumentation, small release of radioactive particulate from the canister exterior, and severe environmental conditions (e.g., hypothetical wind). Off-normal events evaluated for the MAGNASTOR system included crane failure during loaded transfer cask movements and crane/hoist failure during the transportable storage canister (TSC) transfer to the vertical concrete cask (VCC). The ISP safety evaluation of these off-normal events for each potential storage system concluded that the proposed storage system would not exceed applicable 10 CFR 72.106(b) dose limits to individuals at or beyond the controlled area boundary and would satisfy applicable acceptance criteria for maintaining safe operations regarding criticality, confinement, retrievability, and instruments and control systems (ISP, 2018).”

The NRC Staff's review and acceptance of the ISP off-normal design basis events analysis, however, is contingent upon the completion of the NRC safety evaluation report (SER) for the proposed CISF. EIS at 4-95–4-96 (Index 355)(App. p.). Consequently, the NRC Staff cannot make a finding of the environmental impacts associated with off-normal events. And SER review and approval will happen well beyond the close of this public comment period. Thus the public is being deprived, due to mere scheduling concerns, of the opportunity to consider ISP off-normal design basis events analysis for possible environmental concerns the events or analysis of them may raise.

The EIS must fulfill and satisfy to the fullest extent possible the requirements established for final environmental impact statements in NEPA. 40 C.F.R. § 1502.9(a).

The NRC staff's review and acceptance of the ISP accident analysis is contingent upon the completion of the NRC FSER for the proposed CISF project. The NRC safety review staff has not yet evaluated ISP's accident analysis to determine if the required safety criteria have been met with an acceptable safety margin. Nor, of course, has that review been documented in the FSER. EIS at 4-96 (Index 355)(App. p.). The NRC cannot grant a license for construction and operation of the proposed CISF project until it determines that all regulatory requirements of the AEA

and NRC are satisfied. Moreover, maximum efforts are required to make the EIS information available to the public during the comment period. A revised EIS with new public comment opportunity is required here.

“If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion.” *Id.*

CONCLUSION

Based on the foregoing, the Court should reverse the actions of the Respondents. Petitioners Citizens Environmental Coalition, Don't Waste Michigan, San Luis Obispo Mothers for Peace, Public Citizen, Inc., Citizens for Alternatives to Chemical Contamination, Nuclear Information Resource Service, and Leona Morgan pray the Court reverse the Nuclear Regulatory Commission decision by which the Commission denied them legal standing to proceed. Those same Petitioners, together with the Sierra Club and Sustainable Energy and Economic Development Coalition (SEED), further pray the Court to find and declare that the Commission misapplied the Atomic Energy Act and its regulations in denying Petitioners had alleged sufficient contentions. Petitioners further pray the Court find and declare that the Environmental Impact Statement prepared by the Commission is defective in the respects cited by the Petitioners. Finally, Petitioners pray the Court reverse and remand to the Commission the causes and contentions raised in this

Petition for further proceedings, and for the preparation of an amended Environmental Impact Statement.

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CERTIFICATE OF SERVICE

I hereby certify that on this 18th day of March, 2022, I filed the foregoing Petitioners' Proof Brief in the Court's electronic case filing system, which according to its protocols would automatically be served upon all counsel of record.

/s/ Terry J. Lodge

Terry J. Lodge
Co-Counsel for Petitioners

CERTIFICATE OF COMPLIANCE

The foregoing Petitioners' Proof Brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5); the type-style requirements of Fed. R. App. P. 32(a)(6); the length limitation set forth in F.R.App.P. 27(d)(2)(a); and the applicable rules for the U.S. Court of Appeals for the District of Columbia Circuit. The Memorandum was prepared in 14-point, double spaced Times New Roman font using Wordperfect 4X. The Brief contains 9,260 words.

/s/ Terry J. Lodge

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