UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

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PETITION OF BEYOND NUCLEAR, MICHIGAN SAFE ENERGY FUTURE AND DON'T WASTE MICHIGAN FOR LEAVE TO INTERVENE, AND REQUEST FOR AN ADJUDICATORY HEARING

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.309, 10 C.F.R. §§ 50.80 and 50.82, and 10 C.F.R. § 72.50; the hearing notice published by the Nuclear Regulatory Commission ("NRC or Commission") at 86 Fed. Reg. 8226 (February 4, 2021); and pertinent federal law and regulation, Petitioners Beyond Nuclear, Michigan Safe Energy Future and Don't Waste Michigan, ("BN," "MSEF" and "DWM") (collectively, "Petitioners") hereby petition and move for leave to intervene and request a hearing before the Nuclear Regulatory Commission. They seek a hearing on the application of Entergy Nuclear Operations, Inc. ("ENOI"), on behalf of itself, Entergy Nuclear Palisades, LLC ("ENP"), Holtec International ("Holtec"), and Holtec Decommissioning International, LLC ("HDI") (collectively, "Applicants") seeking approval of the transfer of control of Provisional Operating License No. DPR–6 and Renewed Facility Operating License No. DPR–20 for Big Rock Point Plant ("Big Rock Point") and Palisades Nuclear Plant ("Palisades"), respectively, as well as the general license for the Big Rock Point Independent Spent Fuel Storage Installation

("ISFSI") and the Palisades ISFSI (collectively, "the licenses"). The application requests that the NRC consent to (1) the transfer of control of the licenses to Holtec and (2) the transfer of ENOI's operating authority to HDI. The NRC is also considering amending the licenses for administrative purposes to reflect the proposed transfer.

II. DESCRIPTION OF THE PROCEEDING

The NRC is considering the issuance of an order pursuant to 10 CFR §§ 50.80 and 72.50 approving the direct and indirect transfers of control of Provisional Operating License No. DPR–6 and Renewed Facility Operating License No. DPR–20 for Big Rock Point and Palisades, respectively, as well as the general licenses for the Palisades and Big Rock Point Independent Spent Fuel Storage Installations ("ISFSI"s). The application, dated December 23, 2020 (ADAMS No. ML20358A075), requests that the NRC consent to (1) the transfer of control of the licenses to Holtec, and (2) the transfer of ENOI's operating authority (*i.e.,* its authority to conduct licensed activities under the licenses) to HDI. In addition, HDI submitted a "Post Shutdown Decommissioning Activities Report ("PSDAR") including Site-Specific Decommissioning Cost Estimate for Palisades Nuclear Plant" dated December 23, 2020 (ADAMS No. ML20358A232), which the NRC is considering as a supplement to the license transfer application.

The NRC is also considering amending the licenses for administrative purposes to reflect the proposed transfer. Following approval of the proposed direct and indirect transfers of control of the licenses, Holtec Palisades, LLC, would be the licensed owner of the licenses and HDI would be the licensed operator for the licenses. HDI will contract with Comprehensive Decommissioning International, LLC to decommission Palisades. CDI is to decommission the

Palisades power plant, restore the site, and manage on-site spent nuclear fuel. "HDI has a project goal to complete decommissioning and final license termination within approximately 20 years following sale closure and license transfers."[1]

The NRC must forbid any license or right thereunder to be transferred, directly or indirectly, through transfer of control of the license, unless the Commission consents in writing. 10 CFR § 50.80. The Commission must determine that the proposed transferee is qualified to hold the license, and that the transfer is otherwise consistent with applicable provisions of law, regulations, and orders issued by the Commission. *Id.* Before it can issue the proposed conforming license amendment, the Commission must make findings required by the Atomic Energy Act of 1954, as amended (the Act), and Commission regulations.

Petitioners do not believe the HDI possesses the financial qualifications necessary to complete such a risk-intensive project. HDI's decommissioning cost estimates rely on unreasonable assumptions that, either individually or cumulatively, threaten HDI's ability to complete license termination and site restoration activities and manage spent nuclear fuel on the timeline and within the budget proposed in the PSDAR. HDI ignores the likelihood that on-site contamination will exceed current volume and cost estimates. HDI also assumes DOE will begin taking title to spent nuclear fuel by 2030, which is not rationally established,[2] and fails to account for likely project delays associated not only with Palisades, but with decommissioning and related obligations at the various other sites for which HDI is or plans to be responsible. HDI has

[1]PSDAR at 1.

[2]HDI incongruously predicts "Fuel and GTCC waste shipping will be performed when ***repositories*** *[sic]* for this type of waste are developed by the DOE." PSDAR at 13.

no nuclear decommissioning track record and actively underestimates the license termination, site restoration, and spent fuel management liabilities attached to Palisades and Big Rock Point, and so cannot demonstrate adequate decommissioning financial assurance.

Additionally, the application does not establish that the HDI possesses adequate financial qualifications to cope with the funding shortfalls identified above. There is no showing that HDI is adequately capitalized or otherwise has access to the funding necessary to bankroll its own day-to-day operations, let alone procure additional financial assurance when the Palisades nuclear decommissioning trust runs short, which the NRC requires. It is obvious that HDI has no resources beyond or independent from the Nuclear Decommissioning Trust ("NDT").

Indeed, Holtec, acting through HDI and a cast of LLCs, plans to assume decommissioning, site restoration, and spent fuel management obligations not only for Palisades, but also for the three reactors at Indian Point, and reactors at two additional sites. Given the dearth of financial information to support the license transfer application, the structure of the proposed transfer and HDI's significant portfolio risk, the Applicants have not provided adequate assurance that Holtec International is now or will become financially qualified to manage the risks associated with Palisades.

For these reasons, the Petitioners seek leave to intervene in the pending license transfer proceedings for Palisades to oppose the transfer, and request that a hearing be held on the questions of whether the proposed licensee has demonstrated adequate financial qualification, adequate decommissioning financial assurance, and adequate funding for spent fuel management as required under the Atomic Energy Act and relevant NRC regulations.

III. LEGAL STANDING TO INTERVENE

Petitioners BN, MSEF and DWM below set forth their qualifications to qualify as organizations with representational legal standing through designated members to oppose the application and pursue its dismissal, with prejudice.

A. Petitioning Organizations And Designated Members

1. Beyond Nuclear

Beyond Nuclear is a not-for-profit public policy, research, education organization based in Takoma Park, Maryland that advocates the immediate expansion of renewable energy sources to replace commercial nuclear power generation. Beyond Nuclear has over 12,000 members of whom a number reside, work and recreate near the Palisades Nuclear Plant. Beyond Nuclear herewith provides the declarations of three of its members, Maynard Kaufman, Caroline Ferry, and W. Dillon Reed, all of whom have designated Beyond Nuclear to intervene to protect their interests in physical health and safety, the health and safety of their family members, their real property, and the health and stability of the physical environment proximate to Palisades. Beyond Nuclear's address is 7304 Carroll Ave., #182, Takoma Park, MD 20912, phone (301) 270-2209, www.beyondnuclear.org.

Maynard Kaufman is an adult citizen of Michigan who lives at 25485 County Road 681, Bangor, MI 49013, which is located 10 miles from the Palisades Nuclear Plant . He opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. He is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. He further worries that if a spent fuel accident were to occur

at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that his family and/or he might be killed, injured or sickened by airborne or waterborne radioactive releases, and that he might suffer irreparable damage to real and personal property located at his residence. Additionally, he is apprehensive about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. He is disquieted that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

W. Dillon Reed is an adult Michigan citizen who lives at 80015 Ramblewood Drive, Covert, MI 49043, which is located 0.75 straight-line miles from the Palisades Nuclear Plant ("Palisades"). His home is near Lake Michigan and in the warm season he walks on the beach and wades in the Lake within a few hundred yards of Palisades and goes boating with friends or relatives. He opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. He is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. He further worries that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that his family and/or he might be killed, injured or sickened by airborne or waterborne radioactive releases, and that he might suffer irreparable damage to real and personal property located at his residence. Additionally, he is apprehensive about radioactive

leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. He is disquieted that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel

Caroline Ferry is an adult citizen of Michigan who lives at 79964 Fernwood Drive, Covert, MI 49043, which is located 0.75 straight-line miles from the Palisades Nuclear Plant ("Palisades"). Her home is near Lake Michigan and in the warm season she walks on the beach and wades in the Lake within a few hundred yards of Palisades and goes boating with friends or relatives. She opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. She is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. She further worries that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that her family and/or she might be killed, injured or sickened by airborne or waterborne radioactive releases, and that she might suffer irreparable damage to real and personal property located at her residence. Additionally, she is apprehensive about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. She is disquieted that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or

cask used for spent nuclear fuel.

2. Michigan Safe Energy Future

Michigan Safe Energy Future is a grassroots association of people in western and southwestern Michigan which since 2013 has advocated for the permanent shutdown of Palisades Nuclear Plant and replacement of nuclear and natural gas power generation with safe and renewable nonnuclear energy technologies. MSEF does not have a fixed office address, which is deemed to be the residence of its organizational secretary.

James Scott is an adult citizen of Michigan who lives at 80014 Ramblewood Hill, Covert, MI 49043, which is located 1.2 straight-line miles from the Palisades Nuclear Plant. His home is near Lake Michigan and in the warm season he walks on the beach and wades in the Lake within a few hundred yards of Palisades and goes boating with friends or relatives. He opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. He is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. He further worries that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that his family and/or he might be killed, injured or sickened by airborne or waterborne radioactive releases, and that he might suffer irreparable damage to real and personal property located at his residence. Additionally, he is apprehensive about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. He is disquieted

that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

Ann Scott is an adult citizen of Michigan who lives at 80014 Ramblewood Hill, Covert, MI 49043, which is located 1.2 straight-line miles from the Palisades Nuclear Plant. Her home is near Lake Michigan and in the warm season she walks on the beach and wades in the Lake within a few hundred yards of Palisades and goes boating with friends or relatives. She opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. She is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. She further worries that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that her family and/or she might be killed, injured or sickened by airborne or waterborne radioactive releases, and that she might suffer irreparable damage to real and personal property located at his residence. Additionally, she is apprehensive about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. She is disquieted that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

3. Don't Waste Michigan

Don't Waste Michigan is a 30-year-old grassroots association with over 50 members in

southern, western and central Michigan. DWM is located at 811 Harrison St., Monroe, MI 48161. DWM works to shut down aging, dangerous nuclear power plants in the Great Lakes Basin; to halt or block the construction of new nuclear power plants; to educate the public about the dangers of nuclear power and nuclear waste, its deadly by-product; and to block the practice of landfilling nuclear waste.

Alice Hirt is an adult citizen of Michigan who lives at 6677 Summit View, Holland, MI 49024, which is located 36.5 straight-line miles from the Palisades Nuclear Plant. Her home is near Lake Michigan and in the warm season she walks on the beach and wades in the Lake and goes boating with friends or relatives. She opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. She is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. She further worries that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that her family and/or she might be killed, injured or sickened by airborne or waterborne radioactive releases, and that she might suffer irreparable damage to real and personal property located at her residence. Additionally, she is apprehensive about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. She is disquieted that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

Joseph C. Kirk is an adult citizen of Michigan who lives at 29794 Lake Bluff, Palisades Park, MI 49043, which is 0.8 straight-line miles from the Palisades Nuclear Plant. His home is near Lake Michigan and in the warm season he walks on the beach and wades in the Lake within a few hundred yards of Palisades and goes boating with friends or relatives. He opposes the license transfer to Holtec International and Holtec Decommissioning International, LLC because of concerns over Holtec's performance as a corporation. He is concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into, Lake Michigan during decommissioning. He further worries that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that his family and/or he might be killed, injured or sickened by airborne or waterborne radioactive releases, and that he might suffer irreparable damage to real and personal property located at his residence. Additionally, he is apprehensive about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. He is disquieted that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

B. Legal Basis for Standing

Pursuant to 10 CFR § 2.309, a request for hearing or petition for leave to intervene must address (1) the nature of the petitioner's right under the Atomic Energy Act to be made a party to the proceeding, (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding, and (3) the possible effect of any order that may be entered in the

proceeding on the petitioner's interest.

In determining whether a petitioner has sufficient interest to intervene in a proceeding, the Commission has traditionally applied judicial concepts of standing. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332 (1983) (citing *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976)). Contemporaneous judicial standards for standing require a petitioner to demonstrate that (1) she, he or it has suffered or will suffer a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statutes (*e.g.*, the Atomic Energy Act of 1954 (AEA), the National Environmental Policy Act of 1969 (NEPA)); (2) the injury can be fairly traced to the challenged action; and (3) the injury is likely to be redressed by a favorable decision. *See Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plants), LBP-99-25, 50 NRC 25, 29 (1999).

An organization that wishes to intervene in a proceeding may do so either in its own right by demonstrating harm to its organizational interests, or in a representational capacity by demonstrating harm to its members. *See Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-98-9, 47 NRC 261, 271 (1998). An organization seeking representational standing must demonstrate how at least one of its members may be affected by the licensing action (such as by activities on or near the site), must identify that member by name and address, and must show (preferably by affidavit) that the organization is authorized to request a hearing on behalf of that member. *See, e.g., Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995); *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 646-48

(1979); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 390-97 (1979). Regarding the preference for an affidavit, see *Shieldalloy Metallurgical Corp.* (Cambridge, Ohio Facility), CLI-99-12, 49 NRC 347, 354 & n.4 (1999); *Northeast Nuclear Energy Co.* (Millstone Nuclear Power Station, Unit 1), LBP-96-1, 43 NRC 19, 23 (1996).

C. Petitioners Have Demonstrated Standing

Standing to participate in this proceeding is demonstrated by the proximity to Palisades stated in the declarations of the individuals annexed to this Petition. All individual Petitioners, in turn, have authorized the organizational Petitioners to represent their interests in this proceeding.

All but one of the seven individual members has provided evidence of living within 10 miles of Palisades. Five of the six within the 10 mile zone live within 1.2 miles of Palisades. BN, MSEF and DWM all are entitled to the presumption of injury-in-fact for persons residing within that zone. *Houston Lighting & Power Co.* (South Texas Project, Units 1 & 2), LBP-79-10, 9 NRC 439, 443 (1979); *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), LBP-79-1, 9 NRC 73, 78 (1979); and *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), LBP-06-23, 64 NRC 257, 270 (2006)). The license transfer application involves a reactor which will be decommissioned during the license period.

Even assuming, *arguendo,* there is no presumption of standing based upon mere close geographic proximity to Palisades, then standing should be accorded the individual citizens near Palisades based on the "proximity-plus" test, where a petitioner may show that the activity at issue involves geographical closeness to a "significant source of radioactivity producing an

obvious potential for offsite consequences." *Sequoyah Fuels Corp. and General Atomics* (Gore, Oklahoma Site), CLI-94-12, 40 NRC 64, 75 n.22 (1994). The case of *Shaw Areva MOX Services,* LBP-07-14 (2007) involved a license application for a mixed oxide fuel fabrication facility in South Carolina. The petitioners there submitted standing affidavits from members whose residences were within 20 to 32 miles from the facility site. The licensing board noted that the NRC Staff included residents as far away as 50 miles from the facility in its calculation of potential population doses. The *Shaw* decision suggests that a significant proximity radius is justified in cases involving large amounts of spent nuclear fuel, and cited *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-99-25, 50 NRC 25 (1999).

The notion of "injury-in-fact" encompasses all radiation impacts, including those that do not necessarily amount to a regulatory violation. See *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-01-35, 54 NRC 403, 417 (2001) (citing *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 247-48 (1996)). A minor exposure to radiation–even if it is within regulatory limits–will suffice to state an injury-in-fact. *Id.*

And not only actual injury, but the threat of injury from radiation exposure, is sufficient to satisfy the "injury-in-fact" requirement of traditional standing. *See Dominion Nuclear Connecticut, Inc*. (Millstone Nuclear Power Station, Unit 2), CLI-03-14, 58 NRC 207, 216 (2003) ("A threatened unwanted exposure to radiation, even a minor one, is sufficient to establish an injury."). *See also, Duke Power Co. v. Carolina Environmental Study Group, Inc*., 438 U.S. 59, 74 (1978).

Here, the petitioning organizations' members live, work and recreate near a site which for

decades will experience the storage onsite of spent nuclear fuel ("SNF") and greater-than-Class-C waste ("GTCC") waste. It will be transported around the site, loaded into storage casks, stored, monitored and ultimately, repackaged and transported away via truck, barge and/or rail. SNF and GTCC waste are inherently dangerous radiotoxic materials. Each SNF storage and SNF transport canister will carry considerably more radioactivity (200 times or more) than was dispersed by the Hiroshima nuclear bomb. SNF "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. EPA*, 373 F.3d 1251, 1258 (D.C. Cir. 2004) (*per curiam*). Cesium-137, a very dangerous radioactive element if allowed to enter air or water, is one of dozens of listed hazardous radioisotopes in SNF.

HDI admits in the PSDAR that there is a possibility, albeit "low," of radiological accidents, such as zirconium fire accidents, that could produce offsite doses that exceed the EPA's protective action guides and affect the public health and safety.[3] HDI admits the potential for radioactive contamination of various areas of the site[4] and the likely need for remediation.[5] Accidents and spillage have implications for groundwater and lake water quality and air quality for workers and offsite residents such as the individual petitioners living from 1 to 10, or even tens of miles, from the radiation source.

Even the Continued Storage GEIS, cited by HDI,[6] considered an accident scenario "in

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[3]PSDAR at 29-30.

[4]PSDAR at 9-10.

[5]PSDAR at 12, 22.

[6]PSDAR at 38.

which wind-borne missiles damage the concrete overpack of a dry cask" and "also considered an accident resulting in a dry cask leaking. . . ."[7] There is sufficient evidence, in short, of the potential for dire public health and safety and environmental consequences to justify the concerns expressed by BN's, MSEF's and DWM's individual members.

Whether and at what distance from the radiation source a person can be presumed to be affected, and thus have legal standing, is judged on a case-by-case basis in NRC licensing cases, taking into account the nature of the proposed action and the significance of the radioactive source. While a petitioner must show that he or she lives, works or recreates proximate to the location of dangerously radioactive materials, importantly, the petitioner does ***not*** have the burden of articulating a plausible means through which those materials could cause harm. It is the inherent dangers of the radioactive materials that create the obvious potential for offsite consequences. *U.S. Army Installation Command* (Schofield Barracks, Oahu, Hawaii, and Pohakuloa Training Area, Island of Hawaii, Hawaii), CLI-10-20, 71 NRC 216, 218 (2010), citing *USEC, Inc*. (American Centrifuge Plant), CLI-05-11, 61 NRC 309, 311 (2005).

As noted, spent nuclear fuel is high-level nuclear waste and is inherently dangerous with "obvious potential for offsite consequences." The reasonableness of a petitioner's apprehension of injury must be left for consideration when the merits of the controversy are reached. *Armed Forces Radiobiology Research Institute* (Cobalt-60 Storage Facility), ALAB-682, 16 NRC 150, 152, 154 (1982) (petitioners lived three to five miles from water-shielded irradiation facility at National Naval Medical Center holding 320,000 curies of radioactive cobalt-60 that allegedly

[7]"Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel," (NUREG-2157) (2014) ("Continued Storage GEIS" or "GEIS") at Executive Summary, p. lviii.

were emitting gamma radiation; proximity to cobalt inventories sufficed to establish petitioner's interest). In *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111 (1995), the Commission left undisturbed the Atomic Safety and Licensing Board's finding that it was "neither 'extravagant' nor 'a stretch of the imagination' to presume that some injury, 'which wouldn't have to be very great,' could occur within one half mile of the research reactor." *Id.* at 117. *See also CFC Logistics, Inc.*, LBP-03-20, 58 NRC 311, 320 (2003) (petitioners residing from between one-third of a mile to three miles from a facility licensed to possess up to 1 million curies of cobalt-60 could rely on proximity presumption to establish their standing to intervene because of the quantity of radioactive material and its dangerousness). Also, *see Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-15, 59 NRC 256, 257 (2004) (groups with members living at 2.5- and 4.9-mile distances, respectively, from the proposed facility "live in [such] close proximity to the proposed LES facility" that they would have an obvious potential to be affected by the facility). And in an earlier *LES* proceeding involving the proposed Claiborne Enrichment Center, the Licensing Board remarked that the petitioner (which had several members residing within 1 mile, in "close proximity" to the proposed facility) could rely on a "presumption of injury" from an "accidental release of fission products." *See Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), Memorandum and Order (July 16, 1991) (unpublished) at 6.

Prior agency rulings regarding spent fuel pool expansion proceedings also supply some guidance. *Shearon Harris*, LBP-99-25, 50 NRC at 29-31 (petitioner seventeen miles from the facility at issue accorded standing); *Vermont Yankee Nuclear Power Corp*. (Vermont Yankee Nuclear Power Station), LBP-87-7, 25 NRC 116, 118-19 (1987); *id.*, LBP-87-17, 25 NRC 838,

842, *aff'd in part and reversed in part on other grounds*, ALAB-869, 26 NRC 13 (1987) (residence within ten miles of ISFSI sufficient for standing); *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit 1), LBP-88-10A, 27 NRC 452, 454-55 (1988), *aff'd*, ALAB-893, 27 NRC 627 (1988) (standing of individual living within 10 miles of ISFSI conceded by parties); *Northeast Nuclear Energy Co. (*Millstone Nuclear Power Station, Unit 3), LBP-00-02, 51 NRC 25, 28 (2000) (standing granted individual with part-time residence located ten miles from ISFSI).

The proposed license transfer raises significant health, safety, environmental, and financial concerns for BN, MSEF, DWM and their members. BN, MSEF and DWM and their members will be at risk if there is a shortfall in the Decommissioning Trust Fund ("DTF") that prevents the Palisades site from being fully decontaminated and restored. The radiological risk to members' health and safety and to the environment, if land and water intended for release for public use is not decontaminated completely before license termination, will comprise a continuing threat. A financial threat also looms if the DTF is unjustly or improvidently depleted, because the members of BN, MSEF and DWM, as taxpayers and/or ratepayers, may become the last resort source of indemnification and financing of Palisades' decommissioning.

In sum, Petitioner organizations have demonstrated, via declarations of their members, that the members face present or prospective injury, and that they reside close by inherently dangerous radioactive materials that could cause or contribute to extremely serious accidents and/or contamination accidents. Beyond Nuclear, Michigan Safe Energy Future and Don't Waste Michigan all should be granted legal standing to pursue contentions denominated below on behalf of their members.

IV. CONTENTIONS

The NRC's contention regulation, 10 CFR § 2.309 requires that this Petition:

> (I) Provide a specific statement of the issue of law or fact to be raised or controverted, provided further, that the issue of law or fact to be raised in a request for hearing under 10 CFR 52.103(b) must be directed at demonstrating that one or more of the acceptance criteria in the combined license have not been, or will not be met, and that the specific operational consequences of nonconformance would be contrary to providing reasonable assurance of adequate protection of the public health and safety;
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> (ii) Provide a brief explanation of the basis for the contention;
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> (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
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> (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
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> (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue;
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> (vi) In a proceeding other than one under 10 CFR 52.103, provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief; . . . .

CONTENTION NO. 1

Changes in land use, effects of historical site events, and inadequacies of the 2006 Supplemental Environmental Impact Statement all comprise new information which necessitates additional NEPA supplementation.

A number of changes in land use, the historical consequences of activities at the Palisades site, and insufficiencies in the 2006 Supplemental Environmental Impact Statement[8] ("SEIS")

[8] "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 27," NUREG-1437 ("2006 SEIS").

warrant additional supplementation of the NEPA document for Palisades.

A. Rationale for contention

Generally, the changes which require investigation and analysis under NEPA include: accounting for the current historically high Lake Michigan water levels and their effects on hydrological flow onsite and offsite, as well as contributions to erosion of the bluff at the foot of the dune on which dry storage casks containing spent nuclear fuel ("SNF") repose on concrete pads; the interim and final disposition of four bus-sized steam generators at the site, which are radioactively contaminated condition and pose unaddressed concerns for transport and disposal; the lingering effects of multiple water spillages from the Palisades cooling tower array that implicated the Radwaste Building; the characterization of historical tritium spillage and leakage sitewide; the continued use and disposition of two seismically-unqualified concrete storage pads holding SNF in dry storage casks; the unexplained reduction of greater-than-class-C ("GTCC") radioactive waste storage needs from 5 casks for storage to 2 casks; identification of environmental effects of repackaging of SNF from present DSCs into transport containers; the prospects for unloading and repackaging the SNF in defective Cask No. 4, loaded in 1994; and environmental impacts from the need for extended storage of high burnup SNF.

B. Contention is within scope of proceedings

Supplementation is within the scope of this proceeding as admitted by Applicants, who point out that "10 CFR § 50.82(a)(4)(I) requires that the PSDAR include, '. . . a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental

impact statements."[9]

C. Legal standards under NEPA

Under NEPA, NRC is obligated to undertake a supplemental EIS when presented with "substantial changes in the proposed action that are relevant to environmental concerns" or "new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" after the EIS is assembled. 10 C.F.R. § 51.92(a)(1)-(2); *see also id.* § 51.72(a)(1)-(2). "New and significant" information presents "a seriously different picture of the environmental impact of the proposed project from what was previously envisioned." *Hydro Res., Inc.*, 50 N.R.C. 3, 14 (1999). *Blue Ridge Environmental Defense League v. Nuclear Regulatory Com'n*, 716 F.3d 183, 197 (D.C. Cir. 2013).

D. Pertinent facts and evidence

Petitioners address the substantial changes and new and significant circumstances and information below.

1. Lake Michigan Water Levels

In 2006, the level of Lake Michigan was at about 577 ft. MSL (Mean Sea Level).[10] As of February 2021, the level of Lake Michigan is about 580.5 ft. MSL, and the projection is that by the end of 2021 it will rise several more inches.[11] According to the 2006 SEIS, groundwater

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[9]Palisades Post-Shutdown Decommissioning Activities Report (PSDAR) at 18.

[10]Corps of Engineers graph, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjW9sz3uIHvAhXMZc0KHVocBscQFjAAegQIARAD&url=https%3A%2F%2Fwww.lre.usace.army.mil%2FPortals%2F69%2Fdocs%2FGreatLakesInfo%2Fdocs%2FWaterLevels%2FLTA-GLWL-Graph_2016.pdf&usg=AOvVaw0m2ma2LSw4pHdLA-2_NqoE

[11]https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Water-Levels/

beneath the Palisades site ranged from 604 ft. MSL down to 580 ft. MSL, and "[t]he calculated groundwater flow velocity at this site is westward [i.e., toward Lake Michigan] at approximately 23 ft/yr."[12]

The change in Lake Michigan levels thus is in opposition to the groundwater flow from the Palisades site. This raises questions of whether groundwater has slowed its westward travel or even reversed it in some locations on the Palisades site. Higher lake levels may have implications for the rehydration or concentration of groundwater, or change in flow direction of radioactive and nonradioactive contaminants in the soil, discussed below. The rise in lake levels has implications for the security and stability of the two concrete pads on which DSC's repose, including erosion and groundwater as an exacerbation in the event of earthquakes, detailed below.

2. Steam Generators

There are four steam generators at Palisades; two were replaced in the early 1990s and have been stored at Palisades for nearly 30 years in a utility building.[13] Steam generators are bus-sized heat exchangers used to convert water into steam from heat produced in a nuclear reactor core. They are used in pressurized water reactors ("PWR") between the primary and secondary coolant loops. Through use, the piping and associated structures becomes radioactive. "The disposal of steam generators makes up an especially challenging task because of their measures,

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Water-Level-Forecast/Monthly-Bulletin-of-Great-Lakes-Water-Levels/

[12]2006 SEIS at 4-40.

[13]2006 SEIS at 2-1.

their weight and compared to other heat exchangers high radioactive inventory."[14]

There is zero mention or discussion in the 2006 SEIS of steam generator radioactivity or ultimate disposition. In the PSDAR, the Applicants state that it is likely that the generators will be transported offsite by barge, and that a boat slip may have to be constructed at Palisades for this purpose.[15] Applicants conclude that this aspect of decommissioning would be bounded by the 2006 SEIS, as there "would be no impacts on water quality associated with Palisades decommissioning beyond those discussed in the GEIS."[16] The implications of loading and hauling steam generators on the Great Lakes are not mentioned in the 2006 SEIS or the PSDAR.

By contrast, in 2010 the Great Lakes and St. Lawrence Cities Initiative analyzed a proposal to ship steam generators via water from the Bruce nuclear power plant complex on Lake Huron, and predicted that "[i]f all the total radioactive inventory of one steam generator is released, this would exceed the Health Canada Action Level for intervention in the event of a nuclear emergency by two times (2.52 mSv vs. 1mSv action level)."[17]

The Palisades steam generators and associated irradiated piping and other components

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[14]Walberg and others, "Disposal of Steam Generators from Decommissioning of PWR Nuclear Power Plants," IYNC 2008, Interlaken, Switzerland, 20 – 26 September 2008 Paper No. 158, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwin0pmI7YHvAhVUHM0KHZyNDXAQFjALegQIIBAD&url=https%3A%2F%2Finis.iaea.org%2Fcollection%2FNCLCollectionStore%2F_Public%2F40%2F048%2F40048101.pdf&usg=AOvVaw2WwrEiAf2QUGO_LrkU44gG

[15]PSDAR at 11, 19.

[16]PSDAR at 21.

[17]Great Lakes and St. Lawrence Cities Initiative,"Submission to the Canadian Nuclear Safety Commission On the matter of: Application from Bruce Power to Transport Radioactive Steam Generators under Special Arrangement and Exclusive Use on the Great Lakes and St. Lawrence River," http://www.ccnr.org/GLCI_CNSC_Supplementary.pdf (p. 5/58 of .pdf)

proposed to be shipped away via barge must be addressed in a supplemental EIS.

3. Cooling Towers Overflow

There were 3 overflows of water from the Palisades cooling towers in 8 years during the 1980s. According to Consumers Power, radioactive contamination came from the South Radwaste building, after the overflows mixed with heavy rains and flooded the South radwaste building.[18] The principal contaminants listed by the NRC were Cobalt-60 and Cesium-137.[19] Six thousand cubic feet of onsite contaminated soil containing a total radionuclide inventory of 5.1 mCi was removed and disposed elsewhere onsite.[20] About 1,600 cubic feet was "packaged as radwaste" to be "subsequently shipped offsite,"[21] but it is not known whether that occurred. The 6,000 cubic feet that was excavated was estimated to contain 15% of the total radiation, and remained in the fenced area described as South Radwaste Area (Area B).[22] The utility concluded that the problem was resolved by excavation and replacement of topsoil with gravel, to inhibit wind erosion and reduces inhalability.[23] There was no consideration given to whether the groundwater was polluted because "there are no domestic wells in the area down-gradient from

[18]REQUEST UNDER 10 CFR 20.302 TO RETAIN CONTAMINATED SOIL ONSITE AT PALISADES PLANT (TAC NO. 67408) References: (1) CPCo's letter, T. C. Bordine to NRC, https://www.nrc.gov/docs/ML0608/ML060870601.pdf

[19]*Id.*

[20]*Id.*

[21]*Id.*

[22]*Id.*

[23]*Id.*

the plant."[24] That ignores the fact that Lake Michigan is down-gradient drinking water.

It is not clear whether it remains true that there are no domestic water wells down-gradient from Palisades, more than 30 years later, nor, apparently, has any groundwater sampling been done to track any further effects from this incident.

This circumstance supports conducting a new, final sitewide contamination characterization.

4. Characterization Of Historical Tritium Spillage And Leakage

Cancer, birth defects, genetic damage and potentially other maladies occur in humans ingesting tritium. When tritium decays, it emits a low-energy electron (roughly 18,000 electron volts) that escapes and slams into the DNA in the cells next door, a ribosome or some other biologically important molecule.

Palisades has an increasingly disturbing tritium problem. Tritium is mentioned in the 2006 SEIS only as a contaminant released to the water and air in planned and controlled circumstances.[25] [26] But it is the increasingly unplanned, recurring leaks of tritium that Palisades has not been able to anticipate or satisfactorily control that pose ongoing risks to public health. And there is no admission or discussion of the tritium problem in the 2018 Entergy ISFSI letter and report, nor in the PSDAR.

In December 2007, Palisades, as with a growing number of operating reactors in the U.S.,

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[24] *Id.*

[25] 2006 SEIS at 2-11.

[26] *Id.*

disclosed that it was leaking tritium into groundwater on the site.[27] Entergy could not identify when the leak began so it was assumed to have occurred throughout 2007. Palisades determined that the leaks were coming from a failed storage tank and connected underground pipes.[28] Tritium was reported in an onsite groundwater test well at 34,000 picocuries per liter.[29] Entergy estimated that a total of 8.33 curies of tritium was leaked into groundwater with about 1% of the failed tank and piping's tritium contents leaking out.[30] For this same period, the Palisades nuclear power station deliberately released 839 curies of radioactive tritium as liquid effluent into Lake Michigan and 341 curies of radioactive fission and activation gases at ground level.[31]

Palisades and NRC officials downplayed the health and safety significance of these ongoing radioactive releases and concentrated contamination. Entergy emphasized that the discovery of tritium leaks in groundwater was made at a test well on the company's property that is not used for drinking water.[32] This was a misleading assertion; samples taken from onsite test wells are only indicators that highly mobile tritium has escaped into the movement of groundwater tables. At Palisades, groundwater can transport tritium offsite into Lake Michigan and potentially other drinking water sources, such as deeper groundwater tables and aquifers.

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[27]"Tritium found in well near Palisades," *Kalamazoo Gazette*, Dec. 17, 2007

[28]2007 Annual Radioactive Effluent Release Report, Palisades, April 29, 2008, Abnormal Releases, p. 1 of 4 http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html

[29]*Id*. at 1.

[30]*Id.*

[31]*Id.*, Attachments 2 and 3.

[32]"Nuclear plant to dig up pipes in search of leak," Kalamazoo Gazette, May 19, 2008 and "Palisades repairs second tritium leak," Kalamazoo Gazette, August 12, 2009

While the leaking damaged pipe was supposedly excavated, drained, and repaired in 2008,[33] tritium levels continued to spike in Palisades' groundwater,[34] raising concerns that leaks of unknown origin continued. Entergy announced that the leak was caused by a failed weld at a turn in a stainless steel pipe installed during original construction, and claimed that this flaw had also been repaired.[35]

To the immediate north of Palisades is the Van Buren State Park. To the immediate south of Palisades nuclear power plant is Palisades Park, a private, more than century-old resort community with 200 cabins. Portions of the Palisades Park resort community, inhabited mostly during warm weather months, also use well water. The shoreline beaches and waters are popular for boating, swimming and fishing.

In February 2010, Entergy claimed to have replaced all underground pipes[36] but at a public meeting on February 24, 2010, the NRC staff could not verify if Entergy was claiming to have replaced "all" buried pipes that carry radioactive water or just those pipes that carry water related to safety-related functions of the reactor.[37] Entergy later maintained that its spokesperson's statement was taken out of context and that Palisades had not replaced "all" of its

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[33] *Id.*

[34] Palisades reports 'uptick' in tritium," Kalamazoo Gazette, June 11, 2009

[35] "Palisades repairs second tritium leak," Kalamazoo Gazette, August 12, 2009

[36] "Palisades nuclear plant keeping ahead of the leaks," Herald-Palladium, February 20, 2010, http://www.beyondnuclear.org/storage/tritium_buriedpipe_pali_02222010_notreplaced.pdf

[37] http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=100840075

buried pipes to "head off" the corrosion problem.[38]

On June 11, 2014, Entergy announced that there were no active leaks from buried pipes currently on the site. But in 2012 and 2013, workers tried unsuccessfully to repair repeated tritium leaks occurring from an above-ground safety injection refueling water tank. Some of the leakage traveled into the plant's control room. On May 5, 2013, Palisades was manually shut down due to exceeding the "allowable" leak rate from the storage tank. The tank contains up to 300,000 gallons of borated water with low levels of tritium contamination that is used during refueling outages or in case of emergency. During that time, workers found numerous cracks and tried again to stop the tank from leaking.[39] When Entergy eventually did replace the entire bottom of the tank, it was discovered that a protective sand bed barrier had not been installed as credited in the plant's original blueprints.[40]

Entergy discovered radioactive tritium on February 26, 2015 in two temporary onsite test wells, but could not identify the exact location of the pipe leak or the leak volume rate. Entergy suspected the radioactive leak originated from the reactor's steam generator inside containment which leaked out into the turbine building and through failing buried piping systems for the

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[38]"Palisades nuclear plant keeping ahead of the leaks," Herald-Palladium, February 20, 2010 and Correction, February 22, 2010, http://www.beyondnuclear.org/storage/tritium_buriedpipe_pali_02222010_notreplaced.pdf

[39]"Palisades nuclear plant leak released low dose of radioactive water into Lake Michigan," Kalamazoo Gazette, May 10, 2013, http://www.mlive.com/news/kalamazoo/index.ssf/2013/05/leak_at_palisades_nuclear_plan.html

[40]"Palisades: Constant repairs, extra inspections, have kept nuclear plant running," Kalamazoo Gazette, August 25, 2014, http://www.mlive.com/news/kalamazoo/index.ssf/2014/08/palisades_nuclear_plant_repair.html

turbine sump oil separator to the turbine building drain tank.[41] Tritium is an indicator of other radioisotopes that might be present in water used in the nuclear cycle.

Clearly, Palisades has not been able to stay ahead of its tritium leakage. Such leakage is commonplace at aging nuclear reactors. It is possible that tritium contamination is present in the soil at different depths and over conceivably large areas. As noted, neither the PSDAR nor Entergy's 2018 ISFSI decommissioning funding plan even mention the word "tritium." It has a half-life of 12.3 years, continues to be produced at Palisades, and to leak from known and unknown areas of the power plant. It will take more than a century for tritium to degrade to harmless levels. It will continue to be carcinogenic to workers and later, the public once people are allowed back on the site. The tritium problem must be characterized sitewide and analyzed within a new, supplemental EIS.

5. The Seismically-Noncompliant DSC Storage Pads

Michigan has had a lengthy history of earthquake activity, dating back to the first several historically recorded quakes, in 1811 and 1812, originating from the New Madrid fault, centered in New Madrid, Missouri. These quakes registered at 8.0 or higher on the Richter scale and were felt in Michigan. Additional quakes were felt in a variety of locations throughout Michigan in the later 1800s.

The largest earthquake experienced in Michigan was in 1947. With a magnitude of 4.6, it was felt throughout southern Michigan, affecting an area of 50,000 square miles. A quake originating in south central Illinois in 1968 extended approximately 580,000 square miles and

[41]US NRC Daily Event Report for March 19, 2015 Event Number 5097 http://www.beyondnuclear.org/storage/leak-first-fix-later/pali_leak_03192015_der.doc

was felt throughout southern Michigan.

The New Madrid zone has produced the country's largest earthquake and is considered the country's most seismically active region east of the Rocky Mountains. The United States Geological Survey ("USGS") estimates the chance of having an earthquake similar to one of the 1811–12 sequence in the next 50 years is about 7 to 10 percent, and the chance of having a magnitude 6.0 or larger earthquake in 50 years is 25 to 40 percent.[42] Movement of the New Madrid fault was noted in a June 2005 Nature article describing the results of a University of Memphis study that detected a half-inch shift in the fault from 2000 to 2005.

, There are two concrete pads next to the Palisades nuclear plant, located somewhat above the Lake Michigan waters. One was constructed in 1993, the other in 2005. In 1994, Dr. Ross Landsman, NRC Nuclear Safety Engineer and Palisades Dry Cask Storage Inspector, questioned the adequacy of requirements associated with earthquake activity for Palisades' dry cask storage facility in a letter to the chairman of the NRC. In his letter, Dr. Landsman voiced his concerns, "Actually, it's the consequences that might occur from an earthquake that I'm concerned about. The casks can either fall into Lake Michigan or be buried in the loose sand because of liquefaction [soil taking on liquid characteristics]. This event might be in the public's mind in view of what just happened in Southern California. It is apparent to me that NMSS [NRC's Office of Nuclear Material Safety and Safeguards] doesn't realize the catastrophic consequences

[42]USGS Fact Sheet 2009–3071 (August 2009), https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwi--rTilILvAhUbac0KHdypCtkQFjABegQIBhAD&url=https%3A%2F%2Fpubs.usgs.gov%2Ffs%2F2009%2F3071%2Fpdf%2FFS09-3071.pdf&usg=AOvVaw1RM23VhjPZyoZ16ZseQzMF

of their continued reliance on their current ideology."[43]

Dr. Landsman determined that both pads were built on compacted sand and other subsurface materials, dozens of feet above bedrock and well above the ground elevation of the nearby Palisades Nuclear Power Plant. Dr.Landsman had filled a direct oversight role in the inspection of dry cask storage at Palisades when he worked at NRC Region III during the period of dry cask storage installation and operation from 1993 to 2005. He concluded from his personal knowledge of the subsoil conditions that the older, 1993, pad nearer Lake Michigan is in violation of NRC "liquefaction" standards under 10 CFR § 72.212(b)(2)(i)(B), while the newer, 2005, pad further inland violates NRC "amplification" requirements contained within the same regulations.

Neither the older nor newer dry cask storage pads at the Palisades plant were designed in consideration of the factors contained in the cited regulation, consequently each continues to violate 10 CFR § 72.212(b)(3). Hence the cask storage pads have violated NRC regulations since they were constructed, and they will continue to violate NRC regulations throughout any period of contemplated usage.

The pads are aging, are constantly exposed to the elements, and the odds of a severe seismic event are increasing with the passage of time. The eastern pad must function flawlessly for perhaps 80 years until all high burnup fuel can be removed.[44] The probabilities of pad failure – in the face of proof that the pad does not comply with NRC specifications – must be

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[43] ADAMS No. ML20080A666.

[44] Petitioners' expert, Robert Alvarez, points out in his report, discussed further below, that because of safety and logistical considerations, the Nuclear Waste Technical Review Board predicts that high burnup SNF may have to be stored at reactor sites until 2100.

investigated and analyzed, along with a serious assessment of risks of damage to DSCs in the event of an earthquake. There is no mention or discussion of earthquakes except in a general way in the 2006 SEIS. There is zero mention of the word "earthquake" in the PSDAR or the 2018 ISFSI decommissioning letter and report. This matter must be addressed in a supplemental EIS and an updated safety analysis.

6. The GTCC Cask Discrepancy

Entergy estimates in its 2018 ISFSI letter and report that there will be a need for 6 storage overpacks for GTCC canisters.[45] In the PSDAR, however, Entergy and the other Applicant parties state "It is anticipated that no more than 2 GTCC canisters will be required for the storage of GTCC waste from Palisades decommissioning activities."

Neither document reveals the rationale for the estimate. The discrepancy– one estimate is three times the volume of the other – suggests that Holtec and HDI might be characterizing GTCC waste far differently from Entergy. The implications include major cost differences in the means by which GTCC as opposed to other radioactive wastes are transported and the manner in which they are disposed. There may be large differences, depending on transport arrangements, in the amount of radiation exposure for GTCC versus another classification. GTCC is as difficult to dispose of as SNF. These contradictions must be investigated and disclosed within a supplemental EIS.

7. Repackaging dilemmas

Applicants' comprehension of the prudent management of SNF at the plant site, and the subsequent packaging, transport and disposal arrangements is sorely lacking. The economics set

[45]Entergy 2018 letter, ADAMS No. ML18351A478 (p. 39/70 of .pdf).

forth in the PSDAR are highly suspect, and Applicants inconsistently maintain that all repackaging will take place by the late 2020s, and that transports of SNF will commence in 2041,[46] or perhaps 2030, and end by 2066. Entergy foresees "a 2030 start date for DOE initiating transfer of commercial spent fuel to a federal facility (not necessarily a final repository) . . ." and that the spent fuel is projected to be fully removed from the Palisades site in 2066."[47]

Current U.S. Department of Energy policy requires packaging of SNF and GTCC waste into smaller uniformly-sized, multipurpose transport, aging and disposal ("TAD") canisters for purposes of geological repository disposal. This poses a number of unconsidered management, waste generation and cost issues which are poorly addressed, if at all, in the PSDAR.

There are at present zero approved transport canister types to haul the SNF from reactor sites to anticipated geological repository disposal. DOE's underlying objective for requiring uniformly-constructed transportation, aging and disposal canisters ("TADs") is efficiency and safety: the SNF must fit into limited space within the repository in order to control the thermal load that will emanate for centuries from the disposed canisters into the surrounding geological layers of the Earth. The fuel bundles from different reactor types vary greatly in thermal content and as to whether or not they are now considered "high burnup fuel" ("HBF"). Presently there is no agreement on the size nor other features of the TAD canisters to achieve the DOE's efficient disposal requirements.

In 2006, DOE gave notice of intent to supplement the Yucca Mountain Final Environmental Impact Statement in the Federal Register, indicating that "the proposed surface

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[46]PSDAR at 3.

[47]From Entergy 2018 letter, p. 15/70 of .pdf.

and subsurface facilities [at Yuccca] would allow DOE to operate the repository following a primarily canistered approach in which most commercial spent nuclear fuel would be packaged at the commercial sites in multipurpose transport, aging and disposal canisters (TADs), and all DOE materials would be packaged in disposable canisters at the DOE sites. Waste packages would be arrayed in the repository underground to achieve what is referred to as a higher-thermal operating mode, and most spent nuclear fuel and high-level radioactive waste would arrive at the repository by rail."[48]

In the resulting "Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, Vol. I (2008)" ("Yucca SEIS"), the DOE stated that "DOE would use a TAD canister to transport, age, and dispose of commercial spent nuclear fuel without ever reopening the canister, thereby simplifying and reducing the number of handling operations involved in the packaging of spent nuclear fuel for disposal. . . [and] consistent with the analysis in the Yucca Mountain FEIS, this Repository SEIS assumes that it would transport and receive all DOE spent nuclear fuel and high-level radioactive waste in disposable canisters."[49]

The DOE's present approach is described as follows:

> As now proposed, DOE would use a primarily canistered approach to operate the repository; under this approach, *most commercial spent nuclear fuel would be packaged at the reactor sites in TAD canisters.* DOE would repackage commercial spent nuclear fuel that arrived in packages other than TAD canisters into these canisters in newly designed surface facilities at the repository. The Department would package essentially all DOE material in disposable canisters at the DOE sites. Most spent nuclear fuel and

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[48]71 Federal Register 60490 (October 13, 2006), https://www.nrc.gov/docs/ML0927/ML092710174.pdf

[49]https://www.energy.gov/sites/prod/files/EIS-0250-S1-FEIS-01-2008.pdf

> high-level radioactive waste would arrive at the repository by rail. Some shipments would arrive by truck. At the repository, DOE would place the TAD and other disposable canisters in waste packages that were manufactured from corrosion resistant materials. DOE would array the waste packages in the subsurface facility in tunnels (emplacement drifts).

Yucca SEIS at § 1.4.2, p. 1-14 (Emphasis added).

But the Applicants do not acknowledge the existence of this policy, which applies to all SNF to be shipped from reactor sites. While "packaging" is mentioned in the PSDAR, it is a general term referring to all irradiated materials and wastes that will be encountered in the decommissioning. The only sign that Entergy or Holtec recognize that there must be repackaging is in a limited sense, where the SNF in 18 Sierra Nuclear VSC-24 DSCs "possibly" will have to be repackaged before it can be shipped offsite.[50] Entergy said in 2018 that "[r]epackaging is currently assumed to occur immediately after the cessation of plant operations, while the spent fuel pool is still available and the associated fuel handling systems are operable."[51]

Robert Alvarez also points out a significant incongruity in Entergy's understanding:

> The DOE has taken the position that under the Standard Contract, it does not have an obligation to accept canistered fuel from licensees. This position, coupled with the DOE's failure to perform, has increased the difficulty of estimating future requirements under 10 CFR 72.30. The estimates presented in this report are for budgeting purposes only, and do not represent any conclusion by the licensee about how the DOE will actually perform in the future. This report should not be taken as any indication that the licensee knows how the DOE will eventually perform its obligations, or has any specific expectation concerning that performance. If DOE's failure to perform results in specific additional costs beyond those reflected in this report, it is expected that the DOE will compensate the licensee for those costs.[52]

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[50]Entergy 2018 letter at 16/70 of .pdf.

[51]*Id.*

[52]"Declaration of Robert Alvarez" accompanying this Petition, Exh. B, p. 4.

Alvarez points out that this "projection for removal of the SNF has strong elements of speculation."[53] Since DOE has yet to design a standardized TAD and there is no permanent repository selected which would dictate the dimensions of the TADs, Applicants clearly are unprepared to undertake repackaging in a way that will be economical, efficient and protective of workers, the public health and the environment. Applicants' speculation reveals that the exemption they seek to plunder the NDT fund for $166,000,000 for spent fuel management[54] is unreliable and reflects that decommissioning plans are neither well-conceived nor complete.

Petitioners' expert, Robert Alvarez, conclusively establishes in his report that the 18 VSC-24 casks at the site may not be used for transporting SNF,[55] so it is not merely "possible" that repackaging will be required, it is obligatory.

NRC regulations at 10 CFR § 50.82(a)(4)(i) require that the PSDAR include, ". . . a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements." There is no factual discussion of the environmental effects from the unrealistic SNF transport dates, nor confrontation of the harsh realities that high burnup fuel, discussed further below, may not be movable until near the end of the century. There is no discussion of repackaging of all SNF at Palisades, not just that in VSC-24 casks, for purposes of transport to a permanent repository. Indeed, DOE has stated and it is commonly accepted, that there will be no repository before 2048 and that date is suspect. Current federal law does not

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[53] *Id.*

[54] PSDAR Cover Letter; also PSDAR at 1 and Table 4-1 at 17.

[55] "Declaration of Robert Alvarez" accompanying this Petition, Exh. B, pp. 2-3.

allow for the existence of consolidated interim storage facilities such as Holtec International proposes to construct in New Mexico unless there is an open and operating repository. NRC regulations require licensees to "submit written notification to the Commission for its review and preliminary approval of the program by which the licensee intends to manage and provide funding for the management of all irradiated fuel at the reactor following permanent cessation of operation of the reactor *until title to the irradiated fuel and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository.*"[56] There is no mention of DOE taking title to SNF for consolidated interim storage facilities because they cannot legally exist.

Applicants' citing of 2030 or 2041 as the dates that SNF will begin to depart Palisades are fantastical, based on laws that don't exist and facilities that don't exist or will not be brought online within the timeline they postulate despite knowing better.

8. The Problematic Cask No. 4

. Cask No. 4 – the fourth DSC to be loaded with SNF, in 1994 at Palisades – poses an additional dimension to the repackaging woes at Palisades.

Weld defects were detected in the fourth VSC-24 cask in 1994 after it was loaded. In 1993, the Michigan Attorney-General sued to halt the construction and loading of about a dozen VSC-24s on the ground that there were irregularities in technical specification documents the manufacturer, Sierra Nuclear, had filed with the NRC. Each VSC-24 stores 24 spent fuel assemblies, and when loaded weighs approximately 130 tons. It was a requirement that the Consumers Power have written, workable procedures for the unloading of any casks, including

[56] 10 CFR § 50.54(bb).

those with defects or problematic SNF. In the Michigan lawsuit, the utility had provided sworn assurances that any defective VSC-24 could be safely unloaded. The utility engineers analyzed the circumstances and determined that the procedures could not guarantee safe or effective unloading, fearing that using 100 degrees F. water could cause steam flashes since the SNF was at 400 degrees C., which would cause radiation releases. They also determined there was only a 50 hour window of time during which the welding cuts through the lid had to be achieved and the SNF installed in the spent fuel pool, and the worksite could not be cooled during that time. Further, there was no procedure for removing steel shims that were pressure-fit inside the fuel basket inside the cask, below its extremely heavy lid.

On the basis of its review, the NRC Staff concluded that, had Consumers attempted to unload a cask using the original unloading procedure, deficiencies associated with the original procedure would have prevented completion of the unloading process. The original unloading procedure's administrative limit for maximum cask pressure would have prevented the Licensee from establishing a continuous cooling cycle because the internal cask pressure would not have been sufficient to force steam to the outlet of the discharge piping at the bottom of the spent fuel pool. Other weaknesses in the original unloading procedure that would have hampered cask unloading included a restrictive venting capacity due to reliance upon a small vent line with an installed Swagelok fitting, scant guidance for personnel performing tasks such as drawing a gas sample from the multi-assembly sealed basked ("MSB") to check for damaged fuel, and several examples of references to the wrong step within the procedure. Because the original unloading procedure would have required revision in order to complete the unloading process, the NRC found that Consumers had committed a violation of requirements that all activities affecting

quality be prescribed by procedures appropriate for the circumstances and that procedures are reviewed for adequacy.[57]

Petitioners have monitored the ADAMS library for years, seeking information as to whether Cask No. 4 has been unloaded, and have found no evidence that it has been. There was no mention of VSC-24s or other casks in the 2006 SEIS, and none in the 2018 Entergy letter or the PSDAR. As even Entergy admits, all the VSC-24s are facing required repackaging before the SNF they contain can be removed from the site. The procedures to achieve this dangerous site-specific reversal of SNF storage must be identified and the risks assessed in a safety evaluation and disclosed within a supplemental EIS. There certainly is a risk of harm to personnel and perhaps even to the public (such as Petitioners' members, a mile from Palisades) and the environment, given the considerable radiation contained within the spent fuel assemblies inside the cask. That this matter is not mentioned whatsoever in the 2006 SEIS and subsequent decommissioning plans suggests an intention to conceal expensive and dangerous but necessary activities from public notice.

9. Unconsidered high burnup fuel implications

In the past 20 years, increases in the percentage of uranium-235, the key fissionable material that generates energy in "high burnup fuel" has allowed reactor operators to effectively double the amount of time fuel is irradiated while reducing the frequency of costly refueling outages. This has been a major contributor to higher capacity factors in the US over the past couple of decades. There are concerns about high burnup SNF, however, including:

[57]Director's Decision DD-97-1, *Consumers Power Company* (Palisades Nuclear Plant), 45 NRC 33, 37-38 (1997).

• fuel cladding thickness is reduced to form a hydrogen-based rust of the zirconium metal which can cause the cladding to become brittle and fail;

• increased pressure between the pellets and the inner wall of the cladding causes the cladding to thin and elongate;

• high burnup fuel temperatures make it more vulnerable to damage from handling and transport.[58]

The Nuclear Waste Technical Review Board has criticized the NRC and DOE for lacking a technical basis for the transport of high burnup spent nuclear fuel.[59]

Petitioners' expert, Robert Alvarez, observed in his expert report that "Holtec assumes that cooling times prior to loading high burnup SNF can occur after 5 years in wet storage. . . According to research by DOE's Sandia National Laboratory, minimal cooling times prior to emplacement of high burnup SNF into a dry cask range from 25 to 30 years."[60]

Furthering his critique of the 5-year cooling time for high burnup fuel postulated by Applicants, Alvarez states:

According to the Nuclear Waste Technical Review Board : "DOE has examined the trend

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[58]Robert Alvarez, Memorandum, High Burnup Spent Power Reactor Fuel, December 13, 2013. http://www.environmental-defense-institute.org/publications/Alvarez%20Memo%20re-%20High%20Burnup%20Nuclear%20Fuel.%2012-17-2013%20rev.%202docx.pdf

[59]Nuclear Waste Technical Review Board, Letter to Mr. John Kotek, Acting Assistant Secretary for Nuclear Energy, May 23, 2016. https://www.nwtrb.gov/docs/default-source/correspondence/rce0516.pdf?sfvrsn=15

[60]Declaration of Robert Alvarez, Exh. B p. 4, citing U.S. Nuclear Waste Technical Review Board, Preparing for Nuclear Waste Transportation Technical Issues That Need to Be Addressed in Preparing for a Nationwide Effort to Transport Spent Nuclear Fuel and High-Level Radioactive Waste, September 2019, p. 74. https://www.nwtrb.gov/docs/default-source/reports/nwtrb_nuclearwastetransport_508.pdf?sfvrsn=6

> 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, 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. …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 into 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.[61]

A significantly longer storage phase is likely to be required for high burnup fuel, something that is not acknowledged in the 2006 SEIS, the 2018 Entergy letter, or the PSDAR. Indeed, "high burnup" are not even mentioned at all in the two decommissioning plans. This is significant new information warranting investigation and analysis in a supplemental EIS.

CONTENTION NO. 2

Holtec International and SNC-Lavalin, as well as their subsidiary corporations, Holtec Decommissioning International, LLC ("HDI") and Comprehensive Decommissioning International, LLC ("CDI") individually and collectively lack the requisite corporate character, corporate culture and corporate ethics to be licensed, or allowed by contractual privity, to undertake any aspect of the decommissioning of Palisades Nuclear Plant and the management, transportation and disposal of spent nuclear fuel from Palisades and Big

[61]Declaration of Robert Alvarez, Exh. B p. 5, citing U.S. Nuclear Waste Technical Review Board, Preparing for Nuclear Waste Transportation Technical Issues That Need to Be Addressed in Preparing for a Nationwide Effort to Transport Spent Nuclear Fuel and High-Level Radioactive Waste, September 2019, p. 77.
https://www.nwtrb.gov/docs/default-source/reports/nwtrb_nuclearwastetransport_508.pdf?sfvrsn=6

Rock Point.

Petitioners incorporate by reference and reallege as though written herein the foregoing contents of their Petition for Leave to Intervene.

A. Rationale For Contention

Public domain evidence reveals that between them, Holtec International and SNC-Lavalin, a Canadian company, have been debarred, seen their officers and employees convicted of bribery for contracts in multiple countries, generated illegal campaign contributions, and other civil and criminal wrongdoing, such as suspected money laundering, financial manipulation and human trafficking, for nearly two decades.[62]

CDI markets itself as "A Holtec International and SNC-Lavalin Company," stating at its website that "CDI is a joint venture of Holtec International and SNC-Lavalin (TSX: SNC) headquartered in Camden, New Jersey. CDI's focus is performing accelerated decommissioning of retired nuclear power plants using innovative technologies to cut the total time elapsed to release plant sites for unrestricted use to six to eight years, pending regulatory approvals (with the exception of the temporary dry storage installation)."[63]

HDI will contract with Comprehensive Decommissioning International, LLC to decommission Palisades.[64] CDI's role and responsibilities in the Palisades decommissioning are mentioned multiple places in the PSDAR.[65]

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[62]*See* Contention 2, Exhibit A attached to this petition, "Holtec & SNC-Lavalin Company Profiles," which is incorporated fully herein by reference as though herein rewritten.

[63]https://cdi-decom.com/decommissioning/

[64]PSDAR at 5.

[65]For example, see pp. 5, 6, 7, 8, 10 and 13 of the PSDAR.

B. The Contention Is Within The Scope Of These Proceedings

Information concerning a licensee's or applicant's intent to deceive may call into question its "character," a matter the Commission is authorized to consider under Section 182.a. of the Atomic Energy Act, 42 U.S.C. § 2232a,[66] or its ability and willingness to comply with Agency regulations, as Section 103.b., 42 U.S.C. § 2133b,[67] requires. *Consumers Power Co.* (Midland Plant, Units 1 & 2), ALAB-691, 16 NRC 897, 915 n.25 (1982).

C. Legal Standards

The Commission is authorized to consider a licensee's character and integrity in deciding whether to continue or revoke a license. *Piping Specialists, Inc., et al.* (Kansas City, MO), LBP-92-25, 36 NRC 156, 153 (1992), citing *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1207 (1984), *rev'd in part on other grounds*, CLI-85-2, 21 NRC 282 (1985).

False statements, if proved, could signify lack of management character sufficient to preclude an award of an operating license, at least as long as responsible individuals retained any

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[66] "(a) Contents and form. Each application for a license hereunder shall be in writing and shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant, *the character of the applicant*, the citizenship of the applicant, or any other qualifications of the applicant as the Commission may deem appropriate for the license." (Emphasis added).

[67] "(b) Nonexclusive basis. The Commission shall issue such licenses on a nonexclusive basis to persons applying therefor (1) whose proposed activities will serve a useful purpose proportionate to the quantities of special nuclear material or source material to be utilized; (2) who are equipped to observe and who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may by rule establish; and (3) who agree to make available to the Commission such technical information and data concerning activities under such licenses as the Commission may determine necessary to promote the common defense and security and to protect the health and safety of the public. All such information may be used by the Commission only for the purposes of the common defense and security and to protect the health and safety of the public."

responsibilities for the project. *Consumers Power Co.* (Midland Plant, Units 1 & 2), LBP-84-20, 19 NRC 1285, 1297 (1984), citing *Houston Lighting & Power Co.* (South Texas Project, Units 1 & 2), LBP-84-13, 19 NRC 659, 674-75 (1984), and *Consumers Power Co.* (Midland Plant, Units 1 & 2), CLI-83-2, 17 NRC 69, 70 (1983).

The untimely provision of significant information is an important measure of a licensee's character, particularly if it is found to constitute a material false statement. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-738, 18 NRC 177, 198 (1983), *rev'd in part on other grounds,* CLI-85-2, 21 NRC 282 (1985).

An applicant's failure to notify a Board of significant information may reflect a deficiency in character or competence if such failure is a deliberate breach of a clearly defined duty, a pattern of conduct to that effect, or an indication of bad faith. *Houston Lighting & Power Co.* (South Texas Project, Units 1 & 2), LBP-86-15, 23 NRC 595, 625-626 (1986).

D. Pertinent Facts And Evidence

Petitioners incorporate fully by reference as though herein rewritten the facts evidenced by the citations summarized in Contention 2, Exhibit A, which is attached to this Petition and entitled "Holtec & SNC-Lavalin Company Profiles." Petitioners urge the Commission to bear in mind the numerous civil and criminal wrongs contained in Exhibit A as it evaluates Petitioners' opposition to Applicants' receipt of the license transfer on grounds that they have little economic risk or capitalization and are unqualified to take on the enormous expense and management of decommissioning a commercial nuclear power plant.

CONTENTION NO. 3

Applicants' request for the NRC to grant an exemption to use NDT funds for spent fuel

management and site restoration activities is contrary to law and regulation, would present an undue risk to the public health and safety, and is not consistent with the common defense and security.

Petitioners incorporate by reference and reallege as though written herein the foregoing contents of their Petition for Leave to Intervene.

A. Rationale For Contention

In parallel with the submittal of the PSDAR, Applicants on December 23, 2020 requested NRC approval of an exemption to allow them access to Palisades Nuclear Decommissioning Trust ("NDT") funds for Palisades spent fuel and site restoration activities.[68] Applicants maintain that their Decommissioning Cost Estimate ("DCE") "demonstrates that adequate funding is available in the Nuclear Decommissioning Trust (NDT) fund to complete license termination."[69]

The parties agree that Applicants may not expend NDT funds totaling $166,122,000[70] for spent fuel activities, and $34,679,000 for site restoration[71] in the absence of being granted an explicit exemption from the decommissioning regulations by the NRC.

Petitioners maintain, however, that the two claimed expenses are ineligible for reasons of sound public policy and that owing to defective projections of decommissioning workload which carry price tags far higher than Applicants believe, the NDT assets will be depleted and the

[68]PSDAR at 1.

[69]*Id.* at 7.

[70]PSDAR Table 4-2 at 17.

[71]*Id.*

principal objectives of decommissioning will be undermined.

B. The Contention Is Within The Scope Of These Proceedings

This portion of the license transfer decision focuses on the reasonableness of various aspects of the planned decommissioning of Palisades and is covered by 10 CFR Part 50. Pertinent regulations governing this decision, including the criteria governing the Commission's decision to grant the exemption, are contained within Part 50.

C. Legal Standards

In NRC parlance, "Decommission" means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits (1) Release of the property for unrestricted use and termination of the license; or (2) Release of the property under restricted conditions and termination of the license."[72]

The NRC glossary defines "decommissioning" as:

> The process of safely closing a nuclear power plant (or other facility where nuclear materials are handled) to retire it from service after its useful life has ended. *This process primarily involves decontaminating the facility to reduce residual radioactivity and then releasing the property for unrestricted or (under certain conditions) restricted use.* This often includes dismantling the facility or dedicating it to other purposes. Decommissioning begins after the nuclear fuel, coolant, and radioactive waste are removed.[73]

(Emphasis added).

"Residual radioactivity" is "radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes

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[72] 10 C.F.R. § 50.2.

[73] https://www.nrc.gov/reading-rm/basic-ref/glossary/decommissioning.html

background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR part 20."[74]

The NRC glossary defines "decontamination" as:

> A process used to reduce, remove, or neutralize radiological, chemical, or biological contamination to reduce the risk of exposure. Decontamination may be accomplished by cleaning or treating surfaces to reduce or remove the contamination; filtering contaminated air or water; subjecting contamination to evaporation and precipitation; or covering the contamination to shield or absorb the radiation. The process can also simply allow adequate time for natural radioactive decay to decrease the radioactivity.[75]

Given this framework, "activities that go beyond the scope of radiological decommissioning (as defined in 10 C.F.R. § 50.2) -- such as site restoration and the storage, management, and disposal of spent fuel – are not considered 'legitimate decommissioning activities' for the purposes of 10 C.F.R. § 50.82(a)(8)(i)(A)."[76] All withdrawals must be "for legitimate decommissioning activities consistent with the definition of decommissioning in [10 C.F.R.] § 50.2."[77]

Thus, absent an exemption from the NRC, funds accumulated for the purpose of radiological decommissioning may not be used to pay for these activities.[78] Disbursements from

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[74]10 CFR § 20.1003.

[75]https://www.nrc.gov/reading-rm/basic-ref/glossary/decontamination.html

[76]"Decommissioning trust funds may be used by licensees if — (A) The withdrawals are for expenses for legitimate decommissioning activities consistent with the definition of decommissioning in § 50.2. . . ."

[77]10 C.F.R. § 50.82(a)(8)(i)(A).

[78]NEI 15-06 [Revision 0], "Use of the Nuclear Decommissioning Trust Fund," pp. 6-7 (ADAMS No. ML16348A366).

the NDT "are restricted to decommissioning expenses."[79] The NRC's definition of "Decommission" is limited to activities that "reduce residual radioactivity."[80] As the NRC has made clear, "Decommissioning activities do not include the removal and disposal of spent fuel which is considered to be an operational activity or the removal and disposal of nonradioactive structures and materials beyond that necessary to terminate the NRC license."[81] Because decommissioning only includes activities that reduce radiological contamination, it "do[es] not include the cost of demolition and removal of noncontaminated structures, storage and shipment of spent fuel, or restoration of the site."[82]

The NRC's regulations on the creation and use of NDT assets explicitly state that these funds are intended to cover only radiological decontamination necessary for site closure: "Amounts [required to be set aside in the NDTs] are based on activities related to the definition of 'Decommission' in § 50.2 of this part and do not include the cost of removal and disposal of spent fuel or of nonradioactive structures and materials beyond that necessary to terminate the license."[83] The NRC's regulations on financial qualifications for nuclear decommissioning similarly note that NDT assets address "only those decommissioning costs incurred by licensees to remove a facility or site safely from service and reduce residual radioactivity," which does not include, "for example, the costs of dismantling or demolishing non-radiological systems and

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[79] 10 C.F.R. § 50.75(h)(1)(iv).

[80] 10 C.F.R. § 50.2.

[81] "General Requirements for Decommissioning Nuclear Facilities," 53 Fed. Reg. 24018-01, 24018 (1988).

[82] *Id.* at 24028.

[83] 10 C.F.R. § 50.75 n.1.

structures."[84]

The NRC has made abundantly clear that, absent a waiver, only costs that "reduce residual radioactivity" can be withdrawn from the Palisades NDT.[85]

D. Pertinent Facts And Evidence

Notably, when Consumers Energy sold Palisades to Entergy in 2006, Consumers and Entergy pilfered $316,000,000 – 56% – of the then-accrued $566,000,000 Palisades NDT.[86] What might the NDT be worth now, had it not been looted? That corporate conversion took place shortly before the Great Recession of 2008, which has cursed the NDT and many other conservatively-invested funds for half a generation. Applicants omitted to mention this act of corporate self-help as they rationalized their own exemption request.

The Petitioners' expert Robert Alvarez has articulated facts and calculations that reveal Applicants' serious underestimation of the costs of storing SNF in DSCs at Palisades and Big Rock Point. Alvarez calculates that it will cost 30% more for repackaging of the VSC-24 casks than the $17.3 to $37.6 million price tag sussed by Applicants.[87] As to the 20 Holtec casks needed to contain the high burnup SNF once removed from the spent fuel pool at Palisades, Alvarez predicts much more expense than do the Applicants:

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[84]Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance, NUREG-1577, Rev. 1, at 16, § 2(A)(3) (1999).

[85]"Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors, NUREG-1713, Final Report, at 4, § (B)(3) (2004).

[86]"The $316 Million Question," The Herald-Palladium, July 24, 2006, https://www.heraldpalladium.com/localnews/the-million-question/article_d847e49a-9fb5-5412-a920-dcc29ac596b6.html

[87]"Declaration of Robert Alvarez" accompanying this Petition, Exh. B, p. 3.

> The GAO's capital cost estimate for a single canister can be as high as $1.5 million (2014 dollars) – suggesting that the Holtec casks at Palisades would cost as much as $30 million. This does not include the costs outlined in GAO's table for activities and equipment necessary to transfer SNF from wet to dry storage, which can run as high as $42.8 million. This does not include a storage pad, which GAO estimates at $6.5 million, or annual Maintenance and Operation costs as high as $6.5 million/yr. Added together, these costs total $176.8 million (assuming 15 years of M&O expenses.) Taken together, potential costs for repackaging the VSC-24 and Holtec cask emplacement and storage for 40% of the total number of SNF assemblies at Palisades and Big Rock Point come to as much as $206.8 million – nearly 25% more than the total SNF management costs for all SNF at Big Rock and Palisades.[88]

In addition to these escalated costs, repackaging will likely not take place at the accelerated pace estimated by the Applicants. Mr. Alvarez pointed out that high burnup fuel also poses much longer onsite storage (and related expense), possibly through the year 2100, as opposed to 2030 or 2041 or 2066, discussed *supra* at pp. 31, 41. Also, there is the troubling conundrum of unloading and repackaging the SNF in defective Cask No. 4 without causing a serious radiological accident, outlined *supra* at pp. 37-39. The proposed onsite loading for barge transport of the radioactive steam generators has not been publicly mentioned nor analyzed to minimize obstacles and harms, discussed *supra* at pp. 22-24. What about the two DSC storage pads, neither of which comports with seismic requirements, as Petitioners pointed out, *supra* at P. 29-32? Will they hold up for 80 more years?

E. Legally And Factually, The Exemption Is Unsupportable

The NRC may grant the exemption sought by the Applicants only if it is "[a]uthorized by law, will not present an undue risk to the public health and safety, and [is] consistent with the

[88] *Id.* at p. 4.

common defense and security."[89] No "special circumstances" as set forth in § 50.12(a)(2),[90] exist.

Handing some $200,000,000 of the Palisades NDT over to Applicants would not merely be unjust, it would leave fewer resources to accomplish a possibly dangerous decommissioning campaign. Public health and safety could be jeopardized by decommissioning companies hellbent on gaining partial site closure within a decade, at any price. Rewarding the Applicants by going off the NRC regulatory rails would not be beneficial to the public or the environment. Their exemption request should be denied any consideration.

IV. CONCLUSION

The Commission should accord Petitioners with standing to proceed, and by construing the proffered contentions favorably to Petitioners, admit them for adjudication.

The contention rule may not be used as a "fortress to deny intervention." *Matter of Duke Energy Corp.* (Oconee Nuclear Power Plant), 49 NRC at 335 (quoting *Philadelphia Elec. Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), 8 AEC 13, 20-21 (1974), *rev'd in part*, CLI-74-32, 8 AEC 217 (1974), *rev'd in part, York Committee for a Safe Environment v. N.R.C.*

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[89] 10 CFR § 50.12(a)(1).

[90] "(2) The Commission will not consider granting an exemption unless special circumstances are present. Special circumstances are present whenever--

(i) Application of the regulation in the particular circumstances conflicts with other rules or requirements of the Commission; or

(ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or

(iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated; or

(iv) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or

(v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation. . . ."

527 F.2d 812 (D.C. Cir. 1975)). There is no requirement that a substantive case be made at the contention stage. *Matter of Entergy Nuclear Generation Co., et al.* (Pilgrim Nuclear Power Station), 50-293-LR (ASLB Oct. 16, 2006), 2006 WL 4801142 at (NRC) 85 (quoting *Oconee*, 49 NRC at 152).

WHEREFORE, Petitioners pray the Commission grant them admission as intervenors in this proceeding and that their contentions be admitted for adjudication.

February 24, 2021

/s/ Terry J. Lodge
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Counsel for Petitioners

PETITIONERS' MOTION TO INCORPORATE BY REFERENCE AND ADOPT CONTENTIONS FILED BY THE ENVIRONMENTAL LAW AND POLICY CENTER FOR ADJUDICATION

Pursuant to 10 C.F.R. § 2.309(f)(3), Petitioners move to adopt all contentions filed by the Environmental Law and Policy Center ("ELPC") in this proceeding and to re-allege them as their own as if written herein.

Petitioners and the ELPC share many of the same issues and concerns regarding the proposed Palisades license transfer and decommissioning plans in this proceeding. It would serve the interests of judicial economy and merits litigation of the issues for the parties to adopt each other's contentions. Petitioners agree that the ELPC may act as the primary representative with respect to ELPC contentions, and reserve the matter of requesting co-sponsorship or joint

designation for a later time. Petitioners further give notice of their intentions of offering evidence and argument in support of the ELPC's contentions, should they be admitted for adjudication..

In a license transfer proceeding involving Indian Point, two intervenors, the Town of Cortland and Citizens Awareness Network sought to adopt each other's contentions. *See Consol. Edison Co.* (Indian Point, Units 1 and 2), CLI-01-19, 54 NRC 109, 131-33 (2001). The Commission held that where both petitioners have independently met the requirements to participate in the proceeding, the Board may provisionally allow petitioners to adopt each other's issues. *Id.* at 132. That is Petitioners' aim should they be granted standing in this matter, and they so move.

February 24, 2021

/s/ Terry J. Lodge
Terry J. Lodge, Esq.
Counsel for Petitioners

CERTIFICATE OF SERVICE

I hereby certify that on February 24, 2021, I deposited the foregoing Petition for Leave to Intervene in the NRC's electronic docket of this proceeding and that according to the protocols of that system, it was to be automatically transmitted to all parties of record registered to receive electronic service.

/s/ Terry J. Lodge
Terry J. Lodge, Esq.
Counsel for Petitioners

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF ROBERT ALVAREZ

Under penalty of perjury, I, Robert Alvarez ("Declarant"), declare as follows:

1. I have been retained by Beyond Nuclear, Michigan Safe Energy Future and Don't Waste Michigan to advise them concerning the storage of and associated expenses related to radioactive waste management and disposition during the decommissioning of the Palisades Nuclear Plant.

2. My curriculum vitae is attached to this Declaration as Exhibit A and is incorporated fully herein.

3. My report is attached to this Declaration as Exhibit B and is incorporated fully herein.

4. I hereby state that I have conducted my own investigation of the facts stated in my report and that my expressions of opinion are based upon my judgment.

5. Further Declarant saith naught.

02-23-2021
Date

Robert Alvarez
Robert Alvarez

ROBERT ALVAREZ

615 Kennebec Avenue - Takoma Park, Maryland 20912
Phone: 301-585-7672. Fax: 301-585- 9474 E-mail: *kitbob@erols.com*

CURRENT POSITIONS

ASSOCIATE FELLOW, INSTITUTE FOR POLICY STUDIES, WASHINGTON, D.C. 2001- to the present

ADJUNCT PROFESSOR, JOHNS HOPKINS SCHOOL OF ADVANCED STRATEGIC INTERNATIONAL STUDIES, 2013 to the present.

PREVIOUS EMPLOYMENT

SENIOR POLICY ADVISOR TO THE SECRETARY
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

Years Employed: 1993 – 1999

Responsibilities:

- Led and coordinated initiatives and developed policies on behalf of the Secretary relative to nuclear weapons, worker illness compensation, nuclear non-proliferation, nuclear material controls, environmental cleanup, nuclear safety, and asset management.

- Performed technical and policy analyses for the Secretary regarding the U.S . nuclear weapons production complex, commercial nuclear energy, nuclear material management and disposition, nuclear arms reductions with Russia, environmental, safety and health and DOE management issues.

- Oversight of Department-wide labor policies for some 100,000 contract employees.

Accomplishments:

- Led DOE expert teams in a sensitive U.S. Nuclear nonproliferation project to safely secure plutonium-bearing spent fuel at the Yongbyon, nuclear weapons site in North Korea - as part of Agreed Framework between the United States and the Democratic Peoples Republic of Korea.

- Led and developed a successful legislative effort to establish a federal compensation program for Department of Energy nuclear weapons workers with occupational diseases.

- Participated in vulnerability assessments regarding spent nuclear fuel, plutonium and highly-enriched uranium at DOE sites.

- Developed first DOE-wide strategic "Roadmap" for strategic management of the DOE's nuclear material inventory.

- Established the first Department-wide Asset Inventory and Management program that

generated some $60 million in revenues.

- Developed successful procurement plan to stabilize some 700,000 metric tons of depleted uranium hexafluoride - roughly half of the uranium ever mined in the world.

- Established a medical monitoring program for former DOE nuclear weapons workers.

CHIEF INVESTIGATOR
COMMITTEE ON GOVERNMENTAL AFFAIRS
U.S. SENATE, WASHINGTON, D.C.

Years Employed: 1988-93

Responsibilities:

- Prepared and reviewed legislation for the Chairman relative to energy, labor, environment, safety, health, and nuclear weapons issues.
- Oversight, investigations, studies and audits of the U.S. Department's of Energy, Defense, and Interior, Food and Drug Administration, Nuclear Regulatory Commission, National Aeronautic and Space Administration, and Environmental Protection Agency.
- Produced reports, prepared Committee hearings and speech writing for the Chairman.

Accomplishments:

- Drafted and helped enacted several pieces of legislation including: the creation of the Defense Nuclear Facility Safety Board (1988); control of radioactive emissions under the Clean Air Act (1990); establishment of a hazards material worker training program for the Department of Energy (1991); a workforce restructuring and community transition program for shutdown nuclear weapons facilities. (1992); and the termination of the U.S. atmospheric nuclear weapons test readiness program (1993).
- Helped create and foster the Department of Energy's Office of Environmental Restoration and Waste Management Program. (1988-89)
- Organized over 25 Committee hearings on a wide array of subjects.

FOUNDER, AND MEMBER OF THE BOARD OF DIRECTORS
ENVIRONMENTAL POLICY INSTITUTE
WASHINGTON, D.C.

Years Employed: 1975-88

Responsibilities:

- Managed the Institute's research, Congressional communications, and citizen involvement relative to energy, environmental, health and military nuclear issues.
- Public speaking, political organizing and lobbying.
- Fund-raising for a $1.5 million annual budget.

Accomplishments:

- Provided the first credible independent technical research on the environmental, safety and health risks and legacies associated with the U.S. nuclear weapons program.
- Helped enact environmental legislation including the 1977 Clean Air Act, The Resource Conservation and Recovery Act amendments of 1986-92, The 1986 Superfund Act; as well as legislation to dispose of nuclear wastes (The Uranium Mill Tailings Radiation Control Act, 1978, The Nuclear Waste Policy Act, 1982, the Low-Level Waste Policy Act, 1987); and

legislation to prevent the spread of nuclear weapons.
- Led the national environmental effort to strengthen radiation protection standards and provide compensation for radiation victims.
- Helped organize a Congressional investigation and successful lawsuit on behalf of the parents and children of Karen Silkwood, a deceased nuclear "whistle blower." In 1984 the Supreme Court upheld the jury verdict against the company that employed Ms. Silkwood.
- Helped organize diverse political coalitions around the country.
- Organized several scientific conferences and sponsored scientific and medical research published in peer-reviewed journals.

LEGISLATIVE AIDE
U.S. SENATOR JAMES ABOUREZK (D-SD), Washington D.C. Years Employed: 1973-75

Responsibilities:

- Indian affairs, environment, and energy issues.

Accomplishments:

- Helped enact the Indian health care Improvement Act.
- Defended Indian water rights in the Upper Colorado River Basin against large water diversions for environmentally destructive coal gasification plants.
- Uncovered a systematic effort by the Bureau of Indian Affairs and the US Public Health Service to have Indian women sterilized and to have Indian children serve as experimental subjects for drugs without proper informed consent.

AWARDS AND SPECIAL RECOGNITION

- Awarded two Secretarial Gold Medals, the highest honors bestowed by the Department of Energy.
- The John Barlow Martin Prize for Public Interest Journalism, Medill School of Journalism, Northwestern University, in 1989.
- Featured in National Public Television's Nova documentary - Hanford: the Nuclear Legacy - broadcast in February and August of 1990.
- Featured on CBS 60 Minutes story regarding my efforts to uncover military human radiation experiments -- broadcast in March 1994 and August 1995.
- Featured in an October 16, 1999 New York Times article regarding DOE high-level radioactive wastes.
- Featured on the History Channel program, "History's Mysteries" regarding the Karen Silkwood case (November 1999)
- Featured in a January 29, 2000 New York Times article regarding radiation risks to U.S. nuclear weapons workers.
- Featured in a January 30, 2000 Washington Post Article regarding health risks of nuclear weapons workers.
- Featured in the New York Times on April 30, 2000 and on National Public Radio's All Things Considered on May 8, 2000 regarding my experiences in the U.S. Department of Energy.
- Featured on CBS 60 Minutes on March 17, 2002 regarding Defense High-Level Radioactive Wastes.
- Featured on National Public Radio's All Things Considered in May 2003, and May 2010 regarding my experiences at North Korea's nuclear site and a primer on controlling nuclear materials.

EDUCATION

Attended the Dana School of Music in Youngstown, Ohio 1964-68, Majored in music theory and composition.

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Who should manage the U.S. Nuclear Weapons complex? Bulletin of Atomic Scientists, December 2012.
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Exhibit B

REPORT OF ROBERT ALVAREZ

INTRODUCTION

By letter dated December 23, 2020,ENOI, on behalf of itself, Entergy Nuclear Palisades, LLC (ENP), Holtec International (Holtec), and HDI, requested that the NRC consent to: (1) the indirect transfer of control of Renewed Facility Operating License No. DPR-20 for Palisades and the general license for the Palisades Independent Spent Fuel Storage Installation (ISFSI) and Facility Operating License No. DPR-6 for Big Rock Point and the general license for the Big Rock Point ISFSI to Holtec; and (2) the transfer of ENOI's operating authority (i.e., its authority to conduct licensed activities at Palisades) to HD."[1]

In its attached Post Shutdown Decommissioning Activities Report (PSDAR), Holtec proposes to manage the safe storage of about 2082 spent nuclear fuel assemblies at the Palisades Nuclear Power Station[2] and dry casks, 241.5 miles away, at the decommissioned Big Rock Point Reactor. Currently, the Big Rock Point Independent Spent Fuel Storage Installation (ISFSI) holds 441 boiling water reactor spent nuclear fuel assemblies in 7 Fuel Solutions W74 casks. The Palisades ISFSI holds 1096 assemblies in 13 NUHOMS 24PTH, 11 NUHOMS 32 PTH and 18 VSC-24 casks.[3] There is a remaining balance of SNF assemblies in the Palisades Reactor spent fuel pool, which Holtec proposes to place in the 20 Holtec HI STORM dry casks. Holtec proposes to consolidate the existing storage casks to the East ISFSI at Palisades. Holtec also plans to manage the 7 dry casks at the Big Rock Point site until Holtec assumes that DOE will take possession for disposal by 2030.[4] According to Holtec, the remaining SNF at Palisades will be taken for disposal by 2041, thus completing Holtec's promised 20-year decontamination and decommissioning (D&D) plan.

In assuming the NRC licenses for the Big Rock Point and Palisades reactors for the purpose of decommissioning, Holtec estimates that the total cost for the D&D will total $644,815,000 with $166,122,000 (~26% of total projected D&D expense) for management of SNF.[5]

ANALYSIS

Holtec's PDSAR contains strong elements of speculation and fails to address several significant issues that impair the ability to safely store, transport and dispose of SNF, particularly at the Palisades site. Several sources find that these casks are not suited for safe transport, and will

[1] Letter to the U.S. Nuclear Regulatory Commission from Andrea L. Sterdis, Vice President, Regulatory & Environmental Affairs, Holtec Decommissioning International, LLC, December 23, 2020.

[2] Letter (with attachments) from Philip L. Couture, Entergy Nuclear Operations Inc, to the U.S. Nuclear Regulatory Commission, Re: ISFSI Decommissioning Funding Plans (10 CFR 72.30, December 17,, 2018. https://www.nrc.gov/docs/ML1835/ML18351A478.pdf

[3] U.S. Department of Energy, Dry Storage Cask Inventory Assessment, FCRD-NFST-2014-000602, Revision 2, August 22, 2016. https://www.energy.gov/sites/prod/files/2017/03/f34/Dry%20Cask%20Assessment%2C%20Rev%202_0.pdf

[4] Op Cit ref 2.

[5] Op Cit ref. 2, Table 3-3.

have to be repackaged. For instance, the Certificate of Compliance (COC) issued relative to the 18 VSC-24 casks at Palisades states:

"The VSC-24 storage system does not include a dual-purpose (storage and transportation) canister design to satisfy the requirements of 10 CFR 72.236(m). **Therefore, as discussed in ISG-2 [3.19], ready retrieval of the SNF assemblies from the MSB assembly requires: (1) the ability to transfer the sealed MSB assembly to a spent fuel pool (or other facility), and (2) the ability to unload the SNF assemblies from the MSB assemblies for repackaging to allow removal from the reactor site, transportation, and ultimate disposition by the Department of Energy. " [emphasis added]."**[6]

According to the Nuclear Waste Technical Review Board:

"The VSC-24 was originally approved for storage in 1993, when nuclear utilities still expected near-term removal of SNF from the nuclear power plant sites. As directed by the Nuclear Waste Policy Amendments Act of 1987, DOE was to provide a new cask for SNF, remove SNF assemblies from nuclear power plant sites, and begin disposing of SNF on January 31, 1998. So, at the time the VSC-24 system was deployed, cask vendors and nuclear utilities did not believe they also needed to design dry-storage canisters for transportation**.… the VSC-24 MSB was designed and built with no neutron absorber material (also called "neutron poison") that would otherwise be needed to prevent a nuclear criticality accident if the canister became flooded with water. However, the transportation requirements contained in 10 CFR Part 71 stipulate that the licensee must assume that the SNF transportation package becomes flooded with water in a hypothetical accident, regardless of the credibility (i.e., probability) of the accident. Because of this requirement, most SNF casks and canisters in the U.S. were designed and built with neutron absorber materials inside as a control to prevent nuclear criticality. [Emphasis Added]**[7]

According to the NRC, VSC-24 casks have experienced significant cracks "in either the weld between the shield lid and the MSB shell or the weld between the structural lid and the MSB shell.." An Owners Group explored the root cause and concluded that "The Owners Group that HIC [hydrogen induced cracking] of the MSB [multi sealed basked] closure welds was possible because a sufficient combined severity of the following three conditions may have existed during the welding of previously loaded casks and, therefore, previously loaded casks may have been susceptible to HIC …the weld crack in the Palisades cask was caused by an existing condition in the rolling plane of the shell material which was opened up by the process of making the shield lid weld."[8]

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[6] Energy Solutions, Certificate of Compliance Renewal Application for the VSC-24 Ventilated Storage Cask System (Docket No. 72-1007), Document No. VSC-04.1 100, Revision 0. October 12, 2012. https://www.nrc.gov/docs/ML1229/ML12290A139.pd

[7] U.S. Nuclear Waste Technical Review Board, Preparing for Nuclear Waste Transportation Technical Issues That Need to Be Addressed in Preparing for a Nationwide Effort to Transport Spent Nuclear Fuel and High-Level Radioactive Waste, September 2019, P. 74. https://www.nwtrb.gov/docs/default-source/reports/nwtrb_nuclearwastetransport_508.pdf?sfvrsn=6

[8] U. S. Nuclear Regulatory Commission, WELDING ISSUES ASSOCIATED WITH DESIGN, FABRICATION AND LOADING OF SPENT FUEL STORAGE CASKS, 1999, https://inis.iaea.org/collection/NCLCollectionStore/_Public/30/040/30040099.pdf

While hydrogen induced cracking of welds was not officially implicated, the NRC reported "on May 28, 1996. a hydrogen gas ignition occurred [at the Point Beach reactor] during the welding of the shield lid on a ventilated storage cask (VSC-24) multi-assembly sealed basket (MSB). The gas ignition displaced the shield lid (weighing about 2898 kilograms [6,390 pounds])… The hydrogen gas ignition occurred during the initiation of the shield lid welding, approximately 11 hours after the loaded MTC had been removed from the spent fuel storage pool."[9]

In 2018, Entergy informed the NRC because of the issues associated with the 18 VSC-24 casks at Palisades that:

"It is possible that the spent fuel in these casks will have to be repackaged before it can be shipped offsite. Repackaging is currently assumed to occur immediately after the cessation of plant operations, while the spent fuel pool is still available and the associated fuel handling systems are operable. As such, the VSCs are not expected to be on the pad when it is decommissioned (and not considered in this funding plan)."[10]

According to DOE research the costs of repackaging are large, [11] ranging in an additional expense from about $40,000 to about $87,000 per assembly from a pressurized reactor (PWR) relative to loading and capital costs. The costs for the repackaging 432 assemblies in the 18 VSC-24 would range from $17.3 million to $37.6 million. Repackaging expenses for the VSC-24 casks at Palisades would add as much as another 30% to the spent nuclear fuel management costs estimated by Holtec.

The costs associated with the transfer of the SNF in the Palisades pool to 20 HI-STORM casks may be significant. The table below provided to the U.S. Congress by the US. Government Accountability Office [12] supports this contention:

[9] U.S. Nuclear Regulatory Commission, NRC INFORMATION NOTICE 96-34: HYDROGEN GAS IGNITION DURING CLOSURE WELDING OF A VSC-24 MULTI-ASSEMBLY SEALED BASKET, May 31, 1996. https://www.nrc.gov/docs/ML0310/ML031060055.pdf

[10] Entergy, 10 CFR 72.30 ISFSI Decommissioning Funding Plan Palisades Nuclear Plant ISFSI Docket 72-007. December 2018.

[11] U.S. Department of Energy, Office of Nuclear Energy, Standardized Transportation, Aging, and Disposal (STAD) Canister Design, Presentation to the Nuclear Waste Technical Review Board, June 24, 2015. http://www.nwtrb.gov/meetings/2015/june/jarrell.pdf

[12] United States Government Accountability Office, SPENT NUCLEAR FUEL MANAGEMENT Outreach Needed to Help Gain Public Acceptance for Federal Activities That Address Liability, October 2014, p. 17.

Table 2: Typical Costs Associated with Transferring Spent Nuclear Fuel in Canisters from Wet to Dry Storage

Component	Typical Costs
Labor costs to transfer spent nuclear fuel from pool to dry storage[a]	$150,000 to $550,000
Transfer cask	$1.5 million to $3 million
Crawler-type transporter	$1 million to $1.5 million
Vertical storage cask	$250,000 to $350,000
Horizontal storage module	$500,000 to $600,000
Design, licensing, and construction	$5.5 million to $42 million
Annual operations	$100,000 to $300,000 for operating reactor site
	$2.5 million to $6.5 million for permanently shutdown reactor site

Source: GAO analysis of Nuclear Energy Institute data. | GAO-15-141

Note: Some items, such as a transfer cask and a transporter can be re-used and may reflect one-time costs. In addition, costs for the transfer cask and transporter reflect purchase costs, but this equipment could be leased, rather than purchased. The costs for canisters, ranging from $700,000 to $1.5 million, are not included in this table.

Source: GAO-15-141

The GAO's capital cost estimate for a single canister can be as high as $1.5 million (2014 dollars) – suggesting that the Holtec casks at Palisades would cost as much as $30 million. This does not include the costs outlined in GAO's table for activities and equipment necessary to transfer SNF from wet to dry storage, which can run as high as $42.8 million. This does not include a storage pad, which GAO estimates at $6.5 million, or annual Maintenance and Operation costs as high as $6.5 million/yr. Added together, these costs total $176.8 million (assuming 15 years of M&O expenses.) Taken together, potential costs for repackaging the MSF-24 and Holtec cask emplacement and storage for 40% of the total number of SNF assemblies at Palisade and Big Rock Point come to as much as $206.8 million – nearly 25% more than the total SNF management costs for all SBF at Big Rock and Palisades.

Also, the projection for removal of the SNF has strong elements of speculation. According to Entergy's statement to NRC, "The DOE has taken the position that under the Standard Contract, it does not have an obligation to accept canistered fuel from licensees. This position, coupled with the DOE's failure to perform, has increased the difficulty of estimating future requirements under 10 CFR 72.30. The estimates presented in this report are for budgeting purposes only, and do not represent any conclusion by the licensee about how the DOE will actually perform in the future. This report should not be taken as any indication that the licensee knows how the DOE will eventually perform its obligations, or has any specific expectation concerning that performance. If DOE's failure to perform results in specific additional costs beyond those reflected in this report, it is expected that the DOE will compensate the licensee for those costs."[13]

Holtec assumes that cooling times prior to loading high burnup SNF can occur after 5 years in wet storage, As of 12/31/2013 based on 23 fuel discharge cycles, about 20% of the Palisades SNF is high burnup (308 assemblies). Since then, Palisades has had 4 additional fuel discharge cycles, which are mostly high burnup. According to research by DOE's Sandia National Laboratory, minimal cooling times prior to emplacement of high burnup SNF into a dry cask range from 25 to 30 years. [14]

[13] OP Cit Ref. 7.

According to the Nuclear Waste Technical Review Board : "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, 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. …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 into smaller standardized canisters (and using standard assumptions about the operating lifetime of the U.S. feet 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."[15]

[14] U.S. Department of Energy, Sandia National Laboratory, Cooling Times for Storage and Transportation of Spent Nuclear Fuel, February 25, 2013. https://www.osti.gov/servlets/purl/1145261
[15] Op Cit Ref 6. P.77.

HOLTEC & SNC-LAVALIN COMPANY PROFILES

I. Legal Issues History

A. Holtec

a. TVA Bribery Conviction & Debarment	A TVA supervisor pled guilty in 2007 to a federal charge of failing to disclose the receipt of about $55,000 in payments from a Holtec contractor in connection with a contract to build a storage facility for spent nuclear fuel at TVA's Browns Ferry Nuclear Plant in Alabama. The TVA debarred Holtec from doing business with it for 60 days. Holtec was also reportedly forced to agree to pay a $2 million "administrative fee" and to submit to independent monitoring of its operations for twelve months.
b. NJ Tax Fraud Issues	https://www.wnyc.org/story/huge-tax-break-went-politically-connected-company-new-jersey-despite-red-flags/ https://www.propublica.org/article/holtec-international-george-norcross-tax-breaks New Jersey awarded a $260 million "Grow NJ" tax credit from the state's Economic Development Authority (EDA), the second-largest tax break in New Jersey's history. It was put on hold when investigative reporting found Singh's falsely sworn certification in the EDA application claiming Holtec had never been barred from doing business with a state or federal agency
c. Ohio Tax Credits Stripped	https://www.crainscleveland.com/scott-suttell-blog/new-jersey-learned-too-late-what-ohio-already-knew-about-holtec-international Just weeks before filing its application in New Jersey Ohio stripped Holtec of state tax credits for failing to create the jobs it had promised as part of a tax break program. According to records, none of the 200 jobs Holtec had pledged to bring to Orrville, a small town outside Akron, Ohio, ever materialized - 2019.

B. SNC-Lavalin

a. World Bank Debarment	https://www.cbc.ca/news/canada/snc-lavalin-corruption-fraud-bribery-libya-muhc-1.5010865v "In April 2013, [the World Bank] banned SNC-Lavalin and its 100 subsidiaries from bidding on projects funded by the development agency for 10 years, citing company misconduct in Bangladesh, as well as in Cambodia . . . and bribes on projects across Africa and Asia." https://business.financialpost.com/commodities/mining/a-hit-to-sncs-reputation-chilean-state-owned-miner-fires-embattled-company-adding-to-its-woes "[F]ive multilateral development banks, including the World Bank, and others in Asia, Europe, Africa and the Americas, signed *a "cross debarment" agreement*, in which they stipulated that an organization debarred by one bank will be sanctioned by the others."

b. Libyan Bribery Convictions	https://www.cbc.ca/news/canada/montreal/snc-lavalin-trading-court-libya-charges-1.5400542 https://www.nytimes.com/2019/12/18/world/canada/snc-lavalin-guilty-trudeau.html "SNC-Lavalin pleads guilty to fraud for past work in Libya, will pay $280M fine and be placed on probation." Between 2001 and 2011, the company offered Libyan government officials under the Muammar Gaddafi regime bribes worth $47.7 million to influence decisions and defrauded the Libyan government and other entities of "property, money or valuable security or service" worth approximately $129.8 million. https://www.theglobeandmail.com/canada/article-former-snc-lavalin-executive-sami-bebawi-found-guilty-on-all-five/ Former executive Sami Bebawi was found guilty in a separate case of paying off foreign officials as he worked to secure contracts for the firm. "A jury in Montreal has found former SNC executive vice-president Sami Bebawi guilty of all five charges he faced, including bribing a foreign public official, fraud and laundering the proceeds of crime." "Mr. Ben Aissa nurtured with the Gadhafi family. The clan ran the country like a mafia-style kleptocracy" https://www.theglobeandmail.com/opinion/article-us-should-follow-canadas-lead-on-white-collar-crime-enforcement/ "[A]s The Globe and Mail's reporting on the firm's extensive lobbying shows. SNC-Lavalin warned at one point that thousands of jobs would be lost if the company were prosecuted. Without a settlement deal, it would be subject to a hostile takeover, it warned at another – all meant to signal that prosecution equals economic doom."
c. Mexican Conviction	SNC-Lavalin consultant who worked to get members of the Gaddafi family into Mexico went to prison there under charges of "consorting with organized crime, falsifying documents, and human trafficking" https://www.nytimes.com/2019/02/15/world/canada/snc-lavalin-justin-trudeau.html Cynthia Vanier "wound up in a Mexican jail, charged with trying to smuggle the dictator's son into that country" and served 18 months.
d. Montreal Bridge Conviction	https://www.theglobeandmail.com/canada/article-snc-lavalin-faces-possible-new-criminal-charges-over-montreal-bridge/ Canadian federal official pled guilty in 2017 for accepting more than $2.3 million in payments from SNC-Lavalin in connection with the Montreal bridge project, and court documents laid out a $127 million bribery scheme

e. McGill University Hospital Convictions	https://www.traceinternational.org/TraceCompendium/Detail/260?class=casename_searchresult&type=1
	"SNC-Lavalin executives allegedly paid a USD 22.5 million bribe to the former CEO of McGill University Health Centre ("MUHC"), state-funded hospital, Arthur Porter and his wife, Pamela Porter in exchange for obtaining the USD 1.4 billion contract to build the new McGill superhospital.
	Weeks following the announcement of SNC-Lavalin's award of the MUHC contract, Sierra Asset Management ("Sierra Asset"), Arthur Porter's shell company, allegedly received bribe from SNC-Lavalin. Sierra Asset then allegedly transferred the money to Regent Hamilton, a shell company registered in the Bahamas under Pamela Porter's name. Neither of the shell companies allegedly have had any known business transactions. The money allegedly funded purchase of eight homes, several purchased for more than USD 1 million."
	"On 18 December 2014, Pamela Porter pleaded guilty to two counts of money laundering . . . she was sentenced to 33 months, minus time served, with additional year of probation and 240 hours of community service."
	"In July 2015, Arthur Porter died in Panama while still fighting extradition to Canada."
	https://www.theglobeandmail.com/canada/article-former-snc-lavalin-ceo-pleads-guilty-in-fraud-case/
	"Former SNC chief executive Pierre Duhaime was sentenced to serve 20 months of house arrest [in 2019] after pleading guilty to lesser breach of trust charges for his role in the McGill University Health Centre bribery scandal" a criminal investigation into fraud and corruption for $1.3 billion contract to design, build and maintain the McGill University Health Centre's Glen Site.
	https://www.theglobeandmail.com/canada/article-former-mcgill-hospital-manager-pleads-guilty-in-snc-lavalin-bribery-2/
	"A former manager at the McGill University Health Centre pleaded guilty Monday to accepting a $10-million bribe in return for helping engineering firm SNC-Lavalin win the contract to build a major Montreal hospital and research centre."
f. Chilean Contract Terminations	https://business.financialpost.com/commodities/mining/a-hit-to-sncs-reputation-chilean-state-owned-miner-fires-embattled-company-adding-to-its-woes
	In March 2019, Chilean state-owned copper miner Codelco "fired SNC from a $350-million contract to build two sulphuric acid plants, citing construction delays and quality issues."
	"It marks a third front on which the giant engineering and construction company has gotten crosswise with a government entity, in addition to Canada and Saudi Arabia."
	"Having a contract terminated by the world's largest copper miner is a clearly a hit to SNC's reputation within the mining industry"

g. Switzerland Plea Deal	https://www.traceinternational.org/TraceCompendium/Detail/260?class=casename_searchresult&type=1 Swiss authorities detained Riadh Ben Aïssa's who had served as manager of construction at SNC-Lavalin, "as they sought to learn the destination of USD 139 million in funds deposited by SNC-Lavalin into accounts at a private bank, EFG, in Geneva." Mr. Ben Aissa agreed to a deal with Swiss prosecutors. He had been in prison in Switzerland for 29 months. A Swiss attorney associated with Ben Aïssa "was charged with money laundering and corruption for having set up two companies (Dinova and Duvel Securities) in the British Virgin Islands, which were involved in the money transfers." Swiss authorities also investigated an SNC-Lavalin agent named Farid Bedjaoui regarding contracts with Sonatrach (Algeria's state-owned oil company). He is alleged to have made approximately USD 200 million worth of questionable payments on behalf of a number of energy companies.
h. Bridge in Bangladesh	https://www.traceinternational.org/TraceCompendium/Detail/260?class=casename_searchresult&type=1 SNC Lavalin employees, including Kevin Wallace, former President of the Company's wholly owned subsidiary Candu Energy Inc, offered bribes to Bangladeshi government officials in order to win the Padma Bridge Project.
i. Indian Hydroelectric Projects	https://www.globalresearch.ca/snc-lavalin-scandal/5670443 "In 2006 SNC was bailed out by the Canadian aid agency after it didn't follow proper procedure for a contract to renovate and modernize the Pallivasal, Sengulam and Panniyar hydroelectric projects in the southern Indian state of Kerala." https://www.traceinternational.org/TraceCompendium/Detail/260?class=casename_searchresult&type=1 The company paid bribes to the Communist Party of India-Marxist's Kerala Secretary Pinarayi Vijayan and other officials https://www.newindianexpress.com/states/kerala/2017/aug/23/here-is-the-full-timeline-of-snc-lavalin-case-involving-kerala-cm-pinarayi-vijayan-1647133.html "Pinarayi Vijayan, while serving as electricity minister from May 1996 to October 1998, along with other accused, colluded to award the supply contract for the renovation and modernization of the Pallivasal, Sengulam, and Panniar hydroelectric projects to Canada's SNC-Lavalin, bringing a huge loss to the exchequer." Reports say the contracts resulted in an alleged loss of 62 million U.S. dollars to the Indian exchequer.

j. 1,800 Lawsuits Regarding Faulty Concrete	https://nationalpost.com/pmn/news-pmn/canada-news-pmn/owners-of-pyrrhotite-damaged-quebec-demand-money-from-snc-lavalin-settlement SNC-Lavalin has been sued by 800 homeowners and another lawsuit has been announced regarding damages from faulty concrete. Another 1,000 will be included in suits that are being planned "In 2014, the Quebec Superior Court ruled that SNC-Lavalin was 70 per cent responsible" (See section II.B.d) below)
k. Canadian Ethics Scandal	https://www.nytimes.com/2019/08/16/world/canada/trudeau-snc-ethics.html Ethics commissioner Mario Dion found Prime Minister Trudeau violated the Conflict of Interest Act when he tried to pressure Canada's Minister of Justice and Attorney General, Jody Wilson-Raybould to overrule a federal prosecutor's decision to send SNC-Lavalin to trial on corruption charges. She refused and, after four months, she was demoted to veteran affairs minister. If convicted of the charges, SNC-Lavalin could face a decade-long ban from competing for federal government contracts. The scandal threatened to bring down the Trudeau government which narrowly won reelection in 2019
l. Canadian Political Contributions	https://www.theglobeandmail.com/canada/article-former-snc-lavalin-executive-normand-morin-faces-elections-charges/ "In 2016, the Liberal and Conservative parties were forced to reimburse the government $117,803 for illegal donations they received from SNC-Lavalin's political slush fund." A former SNC-Lavalin executive was charged with soliciting employees to make the contributions, conceal their identities, and then get reimbursed by the company through 'false refunds for personal expenses or payment of fictitious bonuses." https://www.theglobeandmail.com/business/commentary/article-hubris-drove-boeing-to-its-annus-horribilis/ "Excessive dependence on governments – for contracts, financial help or political favours – is a high-stakes game. It *causes companies to look for the easy way out rather than fessing up to mistakes and focusing on business fundamentals*." SNC-Lavalin Group – are you listening?

m. Culture of Corruption	https://www.globalresearch.ca/snc-lavalin-scandal/5670443 In 1991, Bernard Lamarre former head of Lavalin (now SNC-Lavalin), told *Maclean's* that he always demanded a receipt when paying international bribes. "I make sure we get a signed invoice," he said. "And payment is always in the form of a cheque, not cash, so we can claim it on our income tax!" https://www.theglobeandmail.com/canada/article-former-snc-lavalin-executive-normand-morin-faces-elections-charges/ "Montreal-based SNC-Lavalin has been engulfed in corruption and bribery scandals reaching back about 14 years amid allegations company executives paid cash to gain advantage with public officials to win billions of dollars in engineering and construction contracts in Canada and around the world." https://www.traceinternational.org/TraceCompendium/Detail/260?class=casename_searchresult&type=1 Police in Canada "charged Mr. Kyres, a prominent lawyer who formerly headed the tax practice at the Montreal office of Dentons Canada LPP, for an alleged plot against a potential witness in connection with the SNC-Lavalin probe. Mr. Kyres was charged with extortion and obstruction of justice" https://www.traceinternational.org/TraceCompendium/Detail/260?class=casename_searchresult&type=1 "SNC-Lavalin allegedly used 'a secret internal accounting code' to pay bribes in 13 projects in 10 countries from 2008 to 2011. . . The countries where this allegedly occurred are Ghana, Nigeria, Malawi, Mozambique, Uganda, Zambia, Kazakhstan, India, Bangladesh, and Cambodia." https://www.globalresearch.ca/snc-lavalin-scandal/5670443 "the firm had either been found guilty or was alleged to have greased palms in Libya, Bangladesh, Algeria, India, Kazakhstan, Tunisia, Angola, Nigeria, Mozambique, Ghana, Malawi, Uganda, Cambodia and Zambia (as well as Québec). A 2013 CBC/*Globe and Mail* investigation of a small Oakville, Ontario, based division of SNC uncovered suspicious payments to government officials in connection with 13 international development projects. In each case between five and 10 per cent of costs were recorded as "'project consultancy cost,' sometimes 'project commercial cost,' but [the] real fact is the intention is [a] bribe," a former SNC engineer, Mohammad Ismail, told the CBC."
n. Possible Consequences in Other Countries	https://business.financialpost.com/commodities/mining/a-hit-to-sncs-reputation-chilean-state-owned-miner-fires-embattled-company-adding-to-its-woes "There will be a wide range of approaches that different governments take, but there will undoubtedly be some governments for which a conviction or perhaps even a deferred prosecution agreement could disqualify a company" SNC-Lavalin Group – can you hear us now?"

II. Qualifications Issues: Other Work Experience

A. Holtec

a. San Onofre Nuclear Plant Waste Problems

https://www.counterpunch.org/2019/06/07/halting-holtec-a-challenge-for-nuclear-safety-advocates/

At the San Onofre Nuclear Generating Station (SONGS) in southern California, Holtec is contracted to transfer spent fuel into dry storage. A whistleblower revealed a near miss as a 50+-ton Holtec canister was being loaded into an 18-foot concrete silo. It got stuck on a shield ring near the top of the vault and workers didn't realize the slings supporting the canister went slack. It hung there unsupported for close to an hour, in danger of dropping. Holtec's Hi-Storm UMAX system canisters at SONGS are thicker than the ones workers had practiced loading. Thicker canisters mean a tighter fit and less room going into the silos.

"[T]he Nuclear Regulatory Commission (NRC) fined Southern California Edison an unprecedented $116,000 for failing to report the near drop . . . delaying giving the go-ahead to further loading operations"

In 2018 workers were preparing a Holtec canister for loading discovered a loose, stainless-steel bolt inside, about four inches long. An investigation revealed that Holtec had altered the canister design without permission from the NRC. The NRC called the unauthorized changes "safety significant."

b. Pilgrim Nuclear Plant Issues in Massachusetts

Attorney General Maura Healey's office filed suit in federal court against the NRC to challenge the decision to approve the sale of the Pilgrim Nuclear Power Station ("Pilgrim") to Holtec. The NRC approved a regulatory exemption Holtec had requested to be allowed to use $541 million of the $1.1 billion decommissioning trust fund for spent fuel work that is normally not covered as a decommissioning expense. (see below)

Holtec would be allowed to reimburse itself in advance from the decommissioning fund for what it spends on spent fuel management, then sue the Department of Energy for breach of contract to recover that money, in effect getting paid for twice for the same work. NRC staff confirmed that any funds Holtec recovers from DoE would not go back into the decommissioning trust fund, but to Holtec.

AG Healy also pointed out that Holtec set aside only a very small portion of the decommissioning fund for contingencies.

US Senator Edward Markey also weighed in, saying Holtec's math on how it will pay for decommissioning does not add up

c. Nuclear Industry Reputation

Holtec has never completed a nuclear plant decommissioning project. Its entire nuclear 'fleet' was acquired less than a year ago.

https://www.claimsjournal.com/news/national/2019/05/22/291057.htm
In legal briefs filed with the NRC, Massachusetts officials including Attorney General Maura Healey have expressed skepticism about Holtec's plan to "decommission Pilgrim on an expedited schedule never before achieved," despite having never owned a nuclear plant nor managed a decommissioning start to finish.

Holtec was not represented at the industry's 2019 Decommissioning and Waster Forum in Charlotte, NC. Many other industry representatives at that Forum were very critical of the company. (comments made to journalists Peter Wolf and 'Profile' author Nancy Vann who attended the Forum)

B. SNC-Lavalin

a. Financial Losses

https://www.theglobeandmail.com/canada/article-evening-update-ottawa-responds-to-drug-shortage-fears-snc-lavalin/

In 2019 "**SNC-Lavalin slashes dividend as it reports $2.1-billion quarterly loss**

SNC-Lavalin is cutting its quarterly dividend for the second time this year to $0.02 per share from $0.10 as it moves to pay down debt and strengthen its balance sheet, the Montreal-based company said in its second- quarter earnings release Thursday. The company swung to a $2.1-billion loss for its latest quarter. It has also mandated a new manager reporting directly to its chief executive officer to oversee the closing out of 11 big lump-sum turnkey contracts over the next several years."

"The company has lost about half its market capitalization since January and its stock is plumbing lows last seen 14 years ago."

https://business.financialpost.com/commodities/snc-lavalin-ceo-neil-bruce-in-the-spotlight-as-reputational-hits-keep-coming-for-embattled-company

"In February [2019], Standard & Poors downgraded SNC to BBB-, and now, along with another credit ratings agency, DBRS, it has confirmed SNC's BBB credit rating, the bottom tier of investment grade."

https://business.financialpost.com/news/fp-street/snc-lavalin-cut-to-junk-on-heightened-credit-risk-profile

SNC-Lavalin rating cut to junk on heightened credit-risk profile
S&P cut the Montreal-based company by one level to BB+, the highest **non-investment grade** rating, according to a statement Monday.

b. Exiting 15 Countries	https://www.reuters.com/article/us-snc-lavalin-results/snc-lavalin-to-exit-15-countries-main-unit-posts-surprise-loss-idUSKCN1S8116 SNC-Lavalin to exit 15 countries. "'We believe that there's at least C$5 to C$6 billion worth of contracts to date that we are privy to that we lost out on because of our competitors using (corruption charges) as a negative,' Chief Executive Officer Neil Bruce said"
c. Abandoning Construction Agreements	https://www.on-sitemag.com/features/from-the-editor-snc-lavalin-retreats-from-construction-but-dont-expect-a-bonanza/ "An expansion of Vancouver's SkyTrain is one of several projects SNC-Lavalin has pulled out of." "[I]t will pull out of the procurement processes for several high-profile jobs, such as Vancouver's Broadway subway extension project and Montreal's Louis-Hippolyte Lafontaine tunnel rebuild." "With the bulk of the firm's workforce dedicated to engineering, "most" of the construction scope of projects has been subcontracted. While this is nothing novel in construction, SNC-Lavalin has taken the practice further than most." "As SNC-Lavalin exits the construction stage complaining about high risks, Canada's contractors simply need to continue doing what they've always done, taking the risks in stride and out-executing their Montreal-based rival." https://www.reuters.com/article/us-snc-lavalin-results/snc-lavalin-to-exit-15-countries-main-unit-posts-surprise-loss-idUSKCN1S8116 "SNC also said a previously announced deal to sell a 10.01 percent stake in 407 International Inc for C$3.25 billion may fall through as one of the shareholders of the Ontario toll operator has indicated it may oppose. If the deal is blocked, the company will have to pay a breakup fee of 2.5 percent of the deal value, and at least one analyst cautioned that this could push up the company's costs for the year." https://business.financialpost.com/news/fp-street/iconic-investor-stephen-jarislowsky-calls-for-vote-on-sncs-407-sale "the value of SNC's 16.5 per cent holding in the 407 toll road's assets represented about 80 per cent of the engineering and construction company's market valuation at the time of the announced sale."

d. Faulty Concrete Problems	https://nationalpost.com/pmn/news-pmn/canada-news-pmn/owners-of-pyrrhotite-damaged-quebec-demand-money-from-snc-lavalin-settlement Hundreds of homes around Trois-Rivieres, Quebec, Canada, were damaged after they were built with low-quality concrete that contained pyrrhotite, which expands when it comes into contact with water and air. "In 2014, the Quebec Superior Court ruled that SNC-Lavalin was 70 per cent responsible for the damage because one of the company's geologists produced a report stating the concrete was fit for use." It's estimated that more than 1,800 homes have been damaged. "[L]egal experts have estimated the average damage to each property is just under $200,000." (See §I.B.j)
e. Canadian Nuclear Work	SNC-Lavalin is part of a consortium to clean up Canada's radioactive waste, as well as all federally owned nuclear facilities. The consortium is paid about a billion dollars in public money each year. In that role it attracted the opposition of 140 municipalities, NGOs and nuclear experts for its plan to permanently store a million cubic meters of mixed radioactive wastes on the surface next to the Ottawa River at Chalk River National Labs. Opponents of the proposal include former senior Chalk River scientists

III. Elusive Corporate Organizational Structures

A. Holtec

a. Holtec International (HI)	https://holtecinternational.com/company/divisions/hdi/ Privately held company founded by CEO Krishna Singh – no public financial disclosure Owned by its shareholders: (i) The Great Banyan Trust, 36.33% ownership interest; and (ii) Multi-Decades Trust, 63.67% ownership interest. These trusts are controlled by CEO Singh[1] Operation centers in the US, Brazil, Dubai, India, South Africa, Spain, UK and Ukraine
b. Holtec Decommissioning International (HDI)	Wholly owned indirect subsidiary of Holtec International[1] "Formed by Holtec to operate and decommission all Holtec-owned decommissioning nuclear power plant sites" [1] Functions as the licensed operator for Holtec owned nuclear power plants
c. Nuclear Consultants International, LLC (NCI)	Nuclear Consultants International, LLC (NCI) is an autonomously constituted business unit of Holtec International. NCI's principal area of concentration is oversight of decommissioning projects to ensure their regulatory and safety. NCI advises the plant owner on licensee requirements and provides oversight activities that meet owner requirements. NCI serves as an agent of the plant owner.

d. Holtec Power, Inc. (HPI)	Subsidiary of Holtec International (HI) Parent of Nuclear Asset Management Company, LLC Parent of Holtec Decommissioning International, LLC (HDI)
e. Nuclear Asset Management Company, LLC (NAMCo)	Indirect Subsidiary of HI through Holtec Power, Inc. (HPI) Parent of Holtec Indian Point 2, LLC and Holtec Indian Point 3, LLC
f. SMR-160, LLC	Based in Camden, NJ, is a wholly owned subsidiary of Holtec International (United States) (See 'Joint Ventures' III.C.b)
g. Ukrainian Module Consortium	https://holtecinternational.com/company/divisions/ukrainian-module-consortium/ "On June 10, 2019, Holtec, Energoatom and SSTC entered into a Trilateral Consortium Partnership to advance the SMR-160 nuclear reactor for deployment across Ukraine. The Consortium's technology operation center is based in Kiev, Ukraine."
h. Holtec Orrvilon Limited	Private company organized in Hong Kong. Ownership structure is undetermined.
i. Orrvilon, Inc.	Aluminum systems, structures, and components, designing, welding, and engineering services facility located in Orrville, OH
j. HI-STORE Consolidated Interim Storage Facility	Holtec has applied to the Nuclear Regulatory Commission for a construction and operating permit, to transport 173,600 metric tons of commercial irradiated nuclear fuel to New Mexico for so-called Consolidated Interim Storage (CIS). (See 'Issues Regarding Other Lines of Business' in Section V.A. below)
k. Holtec Government Services	
l. Holtec Asia Private Limited	
m. Holtec Africa	
n. Holtec Manufacturing Division	
o. HI-POWER Division	
p. Nuclear Power Division	
q. Heat Transfer Division	

r. Singh Center for Nanotechnology	

B. SNC-Lavalin

a. SNC-Lavalin Group Inc.	https://www.snclavalin.com/en A Canadian company based in Montreal
b. SNC-Lavalin Inc.	A wholly owned subsidiary of SNC-Lavalin Group, Inc.
c. SNC-Lavalin International Inc.	A wholly owned subsidiary of SNC-Lavalin Group, Inc.
d. SNC-Lavalin Europe S.A.S.	A wholly owned subsidiary of SNC-Lavalin - headquartered in France
e. Kentz USA	A subsidiary of SNC-Lavalin
f. Atkins Energy, Inc.	A subsidiary of SNC-Lavalin Based in Columbia, South Carolina
g. Candu Energy Inc.	A wholly owned subsidiary of SNC-Lavalin Group, Inc. - reactor technology and supports plants throughout the world Candu Energy Inc. was created in 2011 when parent company SNC-Lavalin purchased the commercial reactor division of Atomic Energy of Canada Limited (AECL), along with the development and marketing rights to CANDU reactor technology.
h. SNC-Lavalin Rail & Transit (Formerly 'Interfleet')	SNC-Lavalin subsidiary in Derby, England

C. Joint Ventures

a. Comprehensive Decommissioning International LLC (CDI)	Holtec (through HDI) and SNC-Lavalin (through Kentz USA) jointly owned decommissioning general contractor Actual work is being performed by this joint-venture entity under contractual agreement Conflict of interest as buyer of Holtec dry storage containers, etc.
b. SMR 160 Reactor Project	https://smrllc.com/2017/07/24/snc-lavalin-and-holtec-formalize-agreement-to-accelerate-the-development-of-smr-160-small-modular-reactor/ "SNC-Lavalin and Holtec Formalize Agreement to Accelerate the Development of SMR-160 Small Modular Reactor"

D. Subsidiaries Created for Indian Point	https://www.nrc.gov/docs/ML1932/ML19326B953.pdf
a. IPEC Independent Spent Fuel Storage Installation (ISFSI)	Current Entergy Dry Storage Facility - IPEC Independent Spent Fuel Storage Installation (ISFSI). It is unclear exactly which Holtec entity will own the ISFSI
b. Holtec Indian Point 2, LLC will own IP1 & IP2	https://www.nrc.gov/docs/ML1932/ML19326B953.pdf - Page 1 Holtec Indian Point 2, LLC is an Indirect Subsidiary of HI through HPI and NAMCo It has no independent capital and no loans or guarantees from the 'parent' companies.
c. Holtec Indian Point 3, LLC will own IP3	https://www.nrc.gov/docs/ML1932/ML19326B953.pdf - Page 1 Holtec Indian Point 3, LLC is an Indirect Subsidiary of HI through HPI and NAMCo It has no independent capital and no loans or guarantees from the 'parent' companies.
E. Organizational Structure Issues	
a. Lack of Working Capital	https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19326B953v None of the subsidiaries have any independent capital. Their only asset is the Decommissioning Trust Fund (DTF). There are no loans from the 'parent' corporations either. That leads to the ***exemption request to use the DTF money for waste management work***. This is **not** the way that operation nuclear plants pay for waste management. Operating plants pay for the waste management work out of their own funds and then are reimbursed by the Department of Energy (DOE). This creates a risk that the DTF will run out of money leaving State and local government on the hook.
b. Shell Corporation Risks	Bankruptcy Risk - https://www.law.nyu.edu/sites/default/files/19-02.20%20-%20NRC%20Petition%20to%20Intervene.pdf The Massachusetts Attorney General had this to say regarding similar structures created by Holtec for the Pilgrim plant decommissioning: "The financial and attendant safety, health, and environmental risks associated with the [license transfer to Holtec] are further increased by the corporate structure of the proposed transferee and new site operators. Holtec Decommissioning International and Holtec Pilgrim, the proposed licensee and new site operator, respectively, are both structured as Limited Liability Companies ("LLCs"). . . This raises a significant risk that the owner and operator could at some point have liabilities that outstrip their assets and could therefore choose to file for bankruptcy before site decontamination and restoration are complete."

c. No Parent Company Commitments	https://www.law.nyu.edu/sites/default/files/19-02.20%20-%20NRC%20Petition%20to%20Intervene.pdf "Nor can anyone necessarily assume that Holtec can obtain additional funds from a parent company because, as the NRC has said previously, a "parent company is not an NRC licensee" and the "NRC does not have the authority to require a parent company to pay for the decommissioning expenses of its subsidiary-licensee, except to the extent the parent may voluntarily provide" a parent company guarantee."

IV. Holtec Decommissioning Proposal Issues

A. Entergy & Holtec's PSDAR Filing Issue	Entergy Nuclear Operations, Inc. ("Entergy") filed a license transfer application ("LTA") (Accession No. ML19326B953 https://www.nrc.gov/docs/ml1932/ML19326B953.pdf) on November 21, 2019 and Holtec filed a 'Post-Shutdown Decommissioning Activities Report' ("PSDAR") and site-specific decommissioning cost estimate ("DCE") with the NRC on December 19, 2019 (ML19354A698 https://www.nrc.gov/docs/ML1935/ML19354A698.pdf) By letter dated February 10, 2020, (https://www.nrc.gov/docs/ML2002/ML20026A002.pdf) the NRC informed Holtec that the PSDAR did not conform to regulatory requirements since Holtec was not the licensee for Indian Point. The NRC will treat that document as a supplement to the LTA. However, this document will continue to refer to it as the PSDAR since that is the title shown on the NRC's ADAMS document website.
B. Ubiquitous Exemptions	
a. General Legal Standards for Granting Exemptions	https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html From NRC Website Fact Sheet Backgrounder on Decommissioning Nuclear Power Plants – Phases of Decommissioning – 1) Transition from Operation to Decommissioning: "Other requirements are currently eased through exemptions and license amendments; several of these transitional changes will be included in the new regulations under development."
b. Holtec Applications for Decommissioning Trust Fund Exemptions	https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19326B953 For Indian Point: "The HDI plan is to fund all spent fuel management costs following license transfer using the NDTs, pursuant to the NRC's approval of an exemption from 10 CFR 50.82(a)(8)(i)(A), which HDI is submitting separately from this Application"

b. Holtec Applications for Decommissioning Trust Fund Exemptions *(cont'd)*	https://www.law.nyu.edu/sites/default/files/19-02.20%20-%20NRC%20Petition%20to%20Intervene.pdf For Pilgrim: "The proposed action would permit Holtec Pilgrim, LLC and HDI to use funds from the Pilgrim decommissioning trust fund (the Trust) for management of spent fuel and site restoration activities." "[W]hen evaluating potential expenses related to the cleanup of other nuclear sites, a decommissioning trust fund shortfall from groundwater contamination is a significant possibility, and a shortfall arising from unexpected spent fuel management expenses is 'very possible.'" https://www.nrc.gov/docs/ML1822/ML18228A498.pdf "The exemption from 10 CFR 50.75(h)(1)(iv) would also permit Exelon to make these withdrawals without prior notification of the NRC, similar to withdrawals for decommissioning activities made in accordance with 10 CFR 50.82(a)(8)."
c. Holtec Applications for Emergency Planning Exemptions	https://www.govtech.com/em/disaster/-Pilgrim-Nuclear-Power-Station-to-shrink-emergency-planning-zone.html https://www.capecodtimes.com/news/20190424/pilgrim-seeks-big-cut-in-liability-insurance "Despite opposition from the region's legislators and even the Federal Emergency Management Agency [FEMA], the Nuclear Regulatory Commission has voted to allow the owners of Pilgrim Nuclear Power Station to shrink the plant's emergency planning zone from the current 10-mile radius down to its own property line. "And with that elimination will come the loss of about $2 million in annual funding for those towns, to be put toward safety training, staffing, equipment and expenses." "FEMA and some states dispute the Nuclear Regulatory Commission staff's premise that "all hazards planning" would be enough to address a nuclear accident. Planning experts recommend the planning zone remain in place." https://www.markey.senate.gov/news/press-releases/senator-markey-blasts-nrc-decision-to-exempt-pilgrim-nuclear-power-plant-from-emergency-planning-requirements Senator Markey Blasts NRC Decision to Exempt Pilgrim Nuclear Power Plant from Emergency Planning Requirements at Entergy & Holtec's request – November 4, 2019 "Today's NRC decision means Pilgrim is exempt from regulations that require the maintenance of offsite emergency response capabilities or ***procedures for public notification***, even before all of the spent nuclear fuel is moved into dry cask storage. Pilgrim's nuclear spent radioactive fuel pool was designed to hold 880 fuel assemblies, but today it holds more than 2,300 – more than two and a half times that number." For Indian Point: See letter dated April 15, 2019

d. Holtec Requests for Faster Spent Fuel Transfers

https://www.claimsjournal.com/news/national/2019/05/22/291057.htm

Under federal protocols, spent fuel rods are typically placed in pools filled with water and reinforced with concrete to prevent leakage. Used fuel generally stays in the pool for at least five years, and 10 years is the industry norm, according to the NRC, allowing for enough cooling so it can be safely moved into so-called "dry storage" casks.

Holtec has designed a cask it says can accept spent fuel after only two years, allowing for a complete transfer from the "wet storage" pool within three years.

Holtec has also applied to reduce fuel pool cooling times to **one (1) year**! (See: Attachment 1 to Holtec Letter 5014855 LAR 1014-14 Rev. 0)

e. Holtec Request for Higher Worker Exposure Limits

https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19354A698

On page 30 of the Post-Shutdown Decommissioning Activities Report (PSDAR) Holtec states that "IPEC will be within the range of the cumulative occupational dose estimates for decommissioning PWR plants of 560 - 1,215 person-rem (per reactor)." However, it is requesting an exemption to raise the exposure limits for workers to 3,500 mrems/hour. Experts say that is a very high exposure limit.

https://www.nrc.gov/about-nrc/radiation/around-us/calculator.html

The "U.S. Nuclear Regulatory Commission (NRC) has established standards that allow exposures of up to 5,000 mrem per year for those who work with and around radioactive material, and 100 mrem per year for members of the public."*

That's because the 'Transfer Casks' Holtec uses to move nuclear waste from the spent fuel cooling pools to dry cask storage have a jacket that is generally filled with water to limit the amount of radiation that escapes. In order to save money, Holtec wants to move the waste without filling the Transfer Cask jackets since that would lighten the total load. However, it would also increase the amount of radiation escaping.

**Estimated health effects*: The reduction in life expectancy from a dose of 1 mrem is about 1.2 minutes. That means that a 40-hour work. week could reduce worker life expectancy by 168,000 minutes or 116.66 days or nearly 1/3rd of a year.

f. Holtec Requests for Exemptions from Insurance Requirements

https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/nuclear-insurance.html

The Price-Anderson Act of 1957 capped nuclear plants' liability for personal injury and property damage caused by a commercial nuclear power plant accident. Claims resulting from nuclear accidents are covered under Price-Anderson; for that reason, ***all U.S. property and liability insurance policies exclude nuclear accidents***.

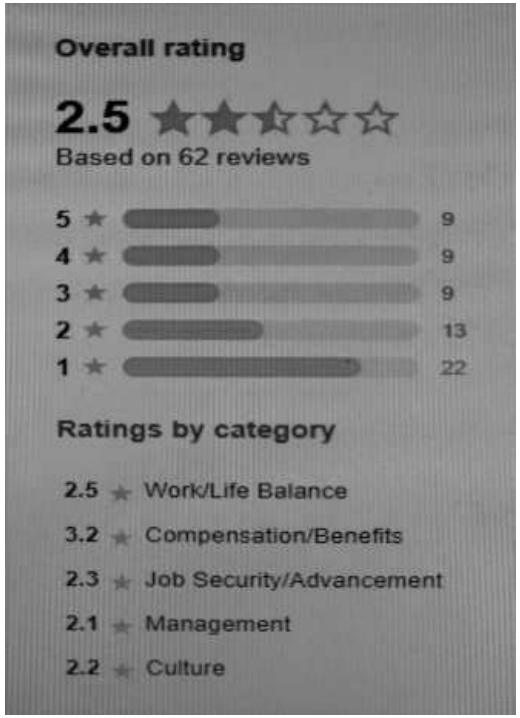
Owners of nuclear plants pay an annual premium for private insurance for offsite liability for each reactor site.

g. Holtec Requests for Exemptions from Insurance Requirements (*cont'd*)	This primary, or first tier, insurance is supplemented by a second tier in case a nuclear accident causes damages in excess of the first tier coverage. A licensee would be assessed a prorated share of the excess, up to $131.056 million per reactor. This secondary tier of funds contains about $12.9 billion. If the public liability exceeded the maximum amount of financial protection available from the primary and secondary tiers, each licensee would be assessed a pro rata share of this excess not to exceed 5 percent of the maximum deferred premium of approximately $6.553 million per reactor. https://www.capecodtimes.com/news/20190424/pilgrim-seeks-big-cut-in-liability-insurance According to the NRC, Holtec has applied for and been approved for exemptions from NRC's insurance regulations for two other plants it is decommissioning: Pilgrim and Oyster Creek. https://www.federalregister.gov/documents/2020/01/13/2020-00285/holtec-pilgrim-llc-holtec-decommissioning-international-llc-pilgrim-nuclear-power-station https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML18229A005
C. "Captive" Community Advisory Panel	There are two positions on the Indian Point NDCAP panel for licensee representatives. Only publicly available information will be used. Any money to hire experts would apparently need to be furnished by the company. We need a truly independent oversight body with the authority and resources required to effectively monitor the decommissioning process.
D. Worker Retention & Conditions	
a. Estimated Worker Retention	At local informational meetings, Holtec employees have stated that "Incumbent staffing levels will be *based on the permanent shutdown and defueled status* of the station immediately prior to the license transfer." It's anticipated that the workforce will shrink from about 900 to about 300 by the closing date.
b. Oyster Creek Worker Issues	Holtec CEO Singh said in a press release, "Many of the excellent plant staff will join our exceptionally qualified engineers." But since then, multiple unions have objected to Holtec hiring less expensive, lower-skilled non-union workers to do the decommissioning work.
c. Racial Issues	https://www.inquirer.com/philly/blogs/inq-phillydeals/camden-jobs-kris-singh-holtec-joseph-balzano-emr-20180914.html https://whyy.org/segments/protesters-call-holtec-ceos-comments-on-camden-workers-racist/ "They don't show up to work," Singh said of Camden workers. "They can't stand getting up in the morning and coming to work every single day. They haven't done it, and they didn't see their parents do it. Of course, some of them get into drugs and things. So, it's difficult."

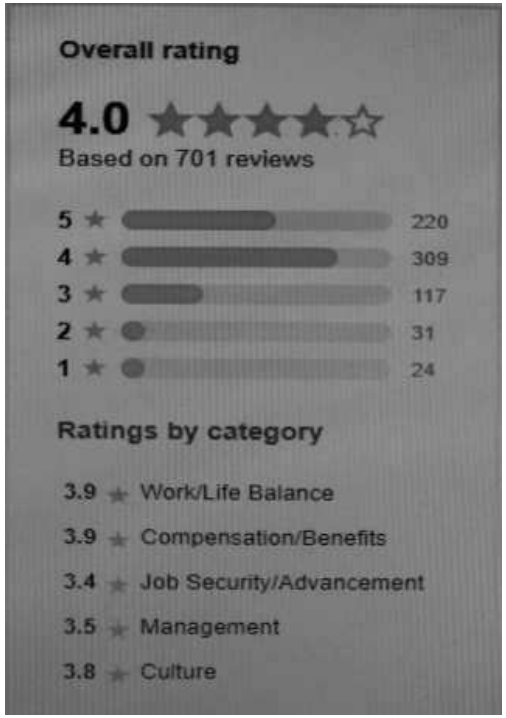
d. Working Conditions

Working conditions at Holtec received a significantly lower score than working conditions for competitor Orano. Accelerated Decommissioning Partners (ADP), a joint venture formed in 2017 between NorthStar Group Services and Orano USA (formerly AREVA Inc.) has decommissioned more than 10 NRC-licensed nuclear reactor and laboratory sites in the U.S.

Holtec - 2.5



Orano - 4.0



E. "Cookie Cutter" Approach to Multiple Projects

If Holtec is approved to decommission Indian Point, it would be responsible for decommissioning as many as six reactors at four nuclear plants at the same time, including Pilgrim, Oyster Creek, Palisades Nuclear Generating Station, and the three Indian Point reactors while also managing spent nuclear fuel those plants.

Holtec plans to move crews from plant to plant between the facilities it is trying to decommission. This approach *has never been used* for decommissioning in the US and ignores the basic differences between the plants. Reminder: Holtec has never completed the decommissioning of even *one* plant.

It is very unclear that Holtec has the required resources to take on such a task, including trained and experienced personnel for performing the work and management for multiple projects. Their "cookie cutter" approach means that a delay at one project can cause delays at all of the others – significantly increasing the decommissioning costs.

F. Unrealistic Timetables

a. Department of Energy (DOE) Taking Ownership of Waste	https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19354A698 The Post-Shutdown Decommissioning Activities Report (PSDAR) includes an assumption that the Department of Energy will take ownership of the spent fuel starting in 2031. PSDAR page 37 Under current law the DOE can't take ownership of the nuclear waste until there is a permanent repository for it. Work has been halted on the only proposed permanent storage facility at Yucca Mountain due to the unsuitability of that damp and geologically unstable location. No new permanent repository has even been proposed.
b. Removal of All Waste from the Site	The PSDAR claims that complete decommissioning of the Independent Spent Fuel Storage Installation (ISFSI), including the removal of spent fuel and Greater Than Class C (GTCC) waste from the site, will be finished by 2062. PSDAR pages 16 & 37 Under current law nuclear waste can't be moved into any interim storage facility until there is a permanent repository for it. Work has been halted on the only proposed permanent storage facility at Yucca Mountain due to the unsuitability of that damp and geologically unstable location. No new permanent repository has even been proposed.
c. Timing of Waste Management Expense Reimbursements	On page 6 of the PSDAR, Holtec states that: "Use of the [NRC's] DECON method will require HDI [Holtec] to manage the spent fuel because of the DOE's failure to perform its contractual obligation to remove spent fuel in a timely manner." The use of Decommissioning Trust Fund (DTF) money for waste management is prohibited. However, Holtec anticipates that the NRC will grant it an exemption allowing use of DTF money for waste management. Holtec expects to then be compensated for the waste management expenses by the DOE (as happens every year for *operating* plants). But it does not expect to put those funds back into the DTF. Use of the DTF for waste management wouldn't be necessary if the entities decommissioning Holtec created had sufficient capital to carry out the work and then be reimbursed by the DOE, as is the normal situation. This arrangement ignores that: (i) Entergy could complete movement of the nuclear waste into dry storage during Period 2 under PSDAR §2.2 before transferring the license to Holtec and (ii) Holtec could hire a company with adequate capital to complete the waste management work.

G. Unrealistic Cost Estimates

a. Assumption that Waste Costs Will Be Transferred to DOE	"The cost to decommission the site, safeguard the spent fuel until it can be transferred to the DOE" PSDAR page 17 The Post-Shutdown Decommissioning Activities Report (PSDAR) includes an assumption that the DOE will take ownership of the spent fuel in 2031. PSDAR page 37. But as stated in §IV.E.a above, that assumption is at odds with the current laws and regulations. Spent Fuel Management total costs are estimated to be $72,381,000 for Unit 1, $188,278,000 for Unit 2, and $371,370,000 for unit 3. PSDAR Table 4-1 page 18
b. No Estimate of Inflation	Page 17 of the PSDAR states that: "Escalation of future decommissioning costs over the remaining decommissioning project life-cycle are excluded." In other words, no allowance has been made for any inflation over the 40 or more year period until the estimated license termination.
c. Cost Estimates vs Work Schedule	The timeline for carrying out specific decommissioning activities doesn't match up with the costs outlined in the PSDAR. Some examples of this issue are presented in the 'Declaration of Warren K. Brewer, submitted to the NRC on February 12, 2020. https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20043E121 He notes that: "For example, the only work scheduled for 2031 is Unit 1 demolition (see PSDAR Figure 3-1) yet DCE Table 3-4c shows twenty-two full-time-equivalents of craft labor for Unit 3. Given that Unit 3 demolition is scheduled to be completed in 2027, there is no indication as to what this labor would be supporting. Similarly, site restoration activities on Figure 3-1 are scheduled for 2032 through 2033 yet the decommissioning cash flows in Tables 5-1a, 5-1b, and 5-1c show substantial expenditures for site restoration throughout most of the decommissioning."
d. Comingling of Decommissioning Trust Funds	Although NRC regulations create separate DTF's for each reactor at Indian Point, the PSDAR seems to assume that those funds will be comingled rather than being used for the specific reactors they have been accrued for.

V. Issues Regarding Other Lines of Business

A. Holtec Interim Storage Project Issues

HI-STOR CISF

Holtec is seeking NRC licenses for an interim storage facility named HI-STOR CISF, located on a 1,000-acre property outside Carlsbad and Hobbs, New Mexico (near the Eddy-Lea county line). It would hold up to 120,000 metric tons of spent nuclear fuel about 40 feet underground in large steel HI-STORM UMAX casks.

The Eddy-Lea Energy Alliance (ELEA), a joint venture with numerous local organizations, owns the surface rights, the New Mexico State Land Office owns the mineral estate beneath the surface in the oil- and gas-rich Permian Basin. Up to 2,500 oil, gas and mineral wells or sites are operated in the area by 54 businesses within a 10-mile radius of the site. Fracking activities can induce significant artificial earthquakes, that can damage CISFs.

The New Mexico State Land Commissioner said that Holtec falsely stated it secured agreements with nearby oil and gas operators to restrict extraction operations near the proposed site and assured the NRC that oil and gas drilling would only occur at depths greater than 5,000 feet. But only one such agreements exists.

"In an unusual alliance with environmental groups, extractive industry groups the Texas-based Fasken Land and Minerals Ltd. and Georgia-based NAC International Inc. also filed petitions for a hearing, contending that the nuclear waste storage project threatens lucrative fracking operations in the booming Permian Basin."

"The project is also widely opposed by Native American Tribes – already victimized by atom bomb testing and uranium mining – as well as ranchers and growers who fear water contamination and the boycotting of their products"

"Rick Perry, Secretary of the U.S. Department of Energy, admitted a few weeks ago to a congressional committee that there is a distinct possibility that 'interim storage' sites like Holtec could become permanent, de facto spent nuclear fuel repositories for hundreds of years or even forever"

B. Inadequate Casks & Canisters

a. Highly Radioactive Contents

Each canister has roughly as much highly radioactive Cesium-137 as was released from the 1986 Chernobyl nuclear disaster. Half of all fuel at Indian Point is 'high burnup' fuel that is even more radioactive than older fuel.

b. Thin Canisters

https://sanonofresafety.org/holtec-hi-storm-umax-nuclear-waste-dry-storage-system/

Most nuclear waste in the U.S. is stored in thin-wall steel storage canisters like those used by Holtec. These canisters cannot be inspected (inside or out), maintained or monitored to prevent major radioactive releases.

- There is no aging management designed into these thin canisters.
- They cannot be inspected for cracks
- They cannot be repaired once loaded with spent nuclear fuel waste.
- There are numerous concrete aging management problems
- A similar container at the Koeberg, South Africa failed after 17 years

Holtec manufactures the thin-wall dry-storage canisters for both Indian Point and the San Onofre project. They are welded shut, designed for interim storage, and are not approved for shipment off site. It has been revealed that the Holtec canisters are getting scratched and gouged in the loading process. Watchdog groups say they accelerate corrosion in the moist salt air and could lead to early failure.

The current U.S. thin-wall steel storage canisters may start failing in as little as 17 to 20 years with through-wall cracks. Even microscopic scratches, pits or other corrosion, such as from moist salt air, can trigger cracking. According to NRC metallurgist Darrell Dunn once a crack starts it can grow through the wall in only 16 years.

In 2014 Holtec's CEO Kris Singh said publicly he didn't believe it was practical to repair the canisters if they were damaged.

Holtec canisters were the subject of scathing safety reviews by a U.S. quality assurance engineer who was later terminated for suspected whistleblowing. These canisters do not meet ASME requirements for inspection, let alone repair. Only thick-wall casks (such as the Castor) meet ASME N3 requirements

The NRC has lowered standards so the utilities can continue using the thin walled canisters rather than requiring more robust containers.

c. Thick Casks

Thick casks used in most other countries and some U.S. sites have superior features:

- Thicker walls (e.g., 10 to 20 inches thick) vs. 1/2 to 5/8 inch thick.
- Ability to remotely monitor for helium leaks.
- Ability to easily inspect the exterior of the canisters.
- Not subject to stress corrosion cracking.
- Not subject to concrete degradation. Concrete overpacks/casks are not needed.
- Robust radiation protection for both storage and transport.
- Reduced cask drop and handling risks results in fewer opportunities for significant radionuclide releases. *SANDIA Human Reliability Analysis Informed Insights on Cask Drops, NUREG/CR-7016*, February 2012 (ML110610673), pp 7-1 and 7-2

c. Thick Casks (*cont'd*)

The use of better canisters was one of the reasons that the Fukushima disaster wasn't even worse. If the canisters had failed, Tokyo would likely have had to be evacuated.

There are some thicker walled casks that are approved for use in the U.S. – but those could be more expensive, which would not encourage their use.

Ten reasons to use thick nuclear waste storage casks

Safety Features	Thin canisters	Thick casks
1. Thick walls	1/2"- 5/8"	10"- 19.75"
2. Won't crack		√
3. Ability to repair, replace seals		√
4. Ability to inspect (inside & out)		√
5. Monitor system prevents leaks		√
6. ASME container certification		√
7. Defense in depth (redundancy)		√
8. Store in concrete building		√
9. Gamma & neutron protection	Need overpack	√
10. Transportable w/o add'l cask		√
Market leader	U.S.	World

SanOnofreSafety.org

Suggested viewing: *'Into Eternity'* Full video with Spanish sub-titles:
https://www.youtube.com/watch?v=ayLxB9fV2y4 *or*
https://www.youtube.com/watch?v=FrGP87XeJjY *or*
https://www.youtube.com/watch?v=gQ3dT7xcMgU

d. Potential Conflict as Canister Buyer & Seller

https://sanonofresafety.org/nuclear-waste/

U.S. utility companies choose the inferior steel/concrete canister designs due to cost. According to the National Research Council of the National Academies (2006), Safety and Security of Commercial Spent Nuclear Fuel Storage, National Academies Press, Washington D.C., page 63.

"The vendors informed the committee that cost is the chief consideration for their customers when making purchasing decisions. Cost considerations are driving the cask industry away from all-metal [thick] cask designs and toward [steel/]concrete designs for storage."

e. Holtec Canisters in Use at Indian Point

Holtec canisters are already in use at Indian Point:

As of June 2013, the Indian Point Independent Spent Fuel Storage Installation (ISFSI) contained the following number of canisters loaded between 2008 & 2013:

19 Holtec HI-STORM 218
5 Holtec HI-STORM IP1

Each canister contained 32 fuel assemblies.

No more recent public information has been identified.

f. No Holtec Facility for Repackaging Damaged Radioactive Waste Containers

While it is predicted that Holtec canisters might leak or otherwise fail in 16 years or less, the company does not plan to include a 'hotcell' at the decommissioning Indian Point facility. The ability to repackage failing containers is essential for both regional and transportation safety.

A Holtec press release regarding its work at the Chernobyl nuclear plant in Ukraine boasts: "Dismembering more than 21,000 RBMK spent fuel assemblies in a special purpose 'hotcell,' packaging those fuel assemblies in double walled canisters(DWCs), and transferring them from water-cooled pools into hermetically sealed rugged helium-filled storage systems inside ventilated modules will mark a huge safety milestone for Ukraine."
https://youtu.be/GYR3GmkRZV0 (skip advertisement)

C. Holtec Dry Storage Downloading System

a. Damage to Containers

Since canisters are loaded with the highly radioactive nuclear waste fuel removed from reactor cores, a downloading system is required.

All Holtec canisters stored at San Onofre are likely damaged (gouged and scraped) due to Holtec downloading system. There is only 1/4″ clearance between the walls of each 54-ton steel canister and a steel 2″ thick Guide Ring inside each storage hole.
HI-STORM UMAX System FSAR Revision 3 (ML16193A339), June 29, 2016 (page 3-46) There is no method to prevent or repair the damage.

Facilities with spent fuel pools and ISFSI licenses, are required to be able to unload fuel from canisters back into the pool. San Onofre's Chief Nuclear Officer admitted this is not possible to do with the four defective canisters, since they are too hot (200 to 300 degrees C) to unload back into the pool (water boils at 100 degrees C). He referred to this as a "reflooding" problem.

Even microscopic scratches, pits or other corrosion, such as from moist salt air, can trigger cracking. They admit once a crack starts it can grow through the wall in only 16 years.

b. Transit Cask Request Issue	As noted above (IV.B.e), instead of proposing a higher capacity downloading system Holtec wants to lighten the load by moving waste from the spent fuel pools to dry storage without filling the Transfer Cask jackets. This seems to be a substantial sacrifice of worker safety solely for cost reduction.

Note: Some of the relevant citations are included as links. Other citations are available as links or hardcopies on request. Information within quotation marks are directly from the sources cited.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATIONS OF PETITIONERS

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF AUTHORIZED OFFICER OF BEYOND NUCLEAR IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR PLANT LICENSE TRANSFER PROCEEDING

Under penalty of perjury, I, Kevin Kamps, declare as follows:

1. I am the Radioactive Waste Specialist of Beyond Nuclear, located at 7304 Carroll Avenue, #182, Takoma Park, MD 20912, Tel. (301) 270-2209, www.beyondnuclear.org. I am authorized to sign this Declaration.

2. Beyond Nuclear ("BN") is formally and officially opposed to the transfer of the Nuclear Regulatory Commission-issued Palisades Nuclear Plant license to Holtec International and/or Holtec Decommission International, LLC.

3. Beyond Nuclear has over 12,000 members, at least three of whom live within 50 miles of PNPP. Beyond Nuclear is concerned that if the NRC authorizes the license transfer, the shutdown and decommissioning of Palisades Nuclear Plant could adversely affect public health and safety and the integrity of the physical environment in which BN's members live.

4. In order to ensure that the license transfer decision for Palisades protects the interests that Beyond Nuclear's members have in a safe and healthy environment, Beyond Nuclear formally seeks to intervene on behalf of its members Maynard Kaufman, Carolyn Ferry and William D. Reed, whose declarations are attached, in the proceeding.

5. Beyond Nuclear intends, on behalf of its members, to take all legal actions necessary to ensure the fairness and integrity of the license transfer proceeding and to have the NRC consider all issues bearing on the safety and health of Beyond Nuclear members, the general public and the physical environment of southwestern Michigan and Lake Michigan.

6. Further Declarant saith naught.

I hereby declare under penalty of perjury that the foregoing facts are true and correct and that any expressions of opinion are based on my judgment.

Beyond Nuclear

February 23, 2021
Date

By Kevin John Kamps
Kevin Kamps, Radioactive Waste Specialist

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF CAROLYN FERRY IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes Carolyn Ferry, declarant herein and makes the following statements under penalty of perjury:

1) My name is Carolyn Ferry. I am an adult citizen of the State of Michigan. I also am a member of Beyond Nuclear, hereafter referred to as "Petitioner."

2) My residence is located at 79964 Fernwood Drive, Covert, MI 49043, which is located 3/4 straight-line miles from the Palisades Nuclear Plant ("Palisades"). My home is near Lake Michigan and in the warm season I walk on the beach and wade in the Lake within a few hundred yards of Lake Michigan and go boating with friends or relatives.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into. Lake Michigan during decommissioning.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by airborne or waterborne radioactive releases, and that I might suffer

irreparable damage to real and personal property located at my residence.

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Beyond Nuclear, a nonprofit grassroots organization that advocates against continued use of commercial nuclear power and in favor of nonnuclear energy technologies. My interests will not be adequately represented absent my legal intervention and without the opportunity of Beyond Nuclear to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

8) Further the Declarant saith naught.

2/19/21
Date

Carolyn Ferry

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF WILLIAM D. REED IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes William D. Reed and makes the following statements under penalty of perjury:

1) My name is William D. Reed. I am an adult citizen of the State of Michigan. I also am a member of Beyond Nuclear, hereafter referred to as "Petitioner."

2) My residence is located at 80015 Ramblewood Drive, Covert, MI 49043, which is located 3/4 straight-line miles from the Palisades Nuclear Plant ("Palisades"). My home is near Lake Michigan and in the warm season I walk on the beach and wade in the Lake within a few hundred yards of Lake Michigan and go boating with friends or relatives.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into. Lake Michigan during decommissioning.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by airborne or waterborne radioactive releases, and that I might suffer

irreparable damage to real and personal property located at my residence.

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Beyond Nuclear, a nonprofit grassroots organization that advocates against continued use of commercial nuclear power and in favor of nonnuclear energy technologies. My interests will not be adequately represented absent my legal intervention and without the opportunity of Beyond Nuclear to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

8) Further the Declarant saith naught.

2/19/2021
Date

William D. Reed

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * * *

DECLARATION OF MAYNARD KAUFMAN IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes Maynard Kaufman and makes the following statements under penalty of perjury:

1) My name is Maynard Kaufman. I am an adult citizen of the State of Michigan. I also am a member of Beyond Nuclear, hereafter referred to as "Petitioner."

2) My residence is located at 25485 County Road 681, Bangor, MI 49013, which is located 10 miles from the Palisades Nuclear Plant ("Palisades"). My home is near Lake Michigan and in the warm season I walk on the beach and wade in the Lake within a few hundred yards of Palisades Nuclear Plant.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into. Lake Michigan during decommissioning.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by airborne or waterborne radioactive releases, and that I might suffer

irreparable damage to real and personal property located at my residence.

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Beyond Nuclear, a nonprofit grassroots organization that advocates against continued use of commercial nuclear power and in favor of nonnuclear energy technologies. My interests will not be adequately represented absent my legal intervention and without the opportunity of Beyond Nuclear to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

8) Further the Declarant saith naught.

Feb 22, 2021
Date

Maynard Kaufman
Maynard Kaufman

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF AUTHORIZED OFFICER OF DON'T WASTE MICHIGAN IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR PLANT LICENSE TRANSFER PROCEEDING

Under penalty of perjury, I, Michael Keegan ("Declarant"), declare as follows:

1. I am the Convenor of Don't Waste Michigan, a nonprofit Michigan grassroots organization. I am authorized to sign this Declaration.

2. Don't Waste Michigan opposes the transfer of the Nuclear Regulatory Commission-issued Palisades Nuclear Plant license to Holtec International and/or Holtec Decommission International, LLC.

3. Don't Waste Michigan (DWM) is a 30-year-old grassroots association with over 50 members in southern and central Michigan. DWM is located at 811 Harrison St., Monroe, MI 48161. DWM works to end various incarnations of commercial nuclear power generation and 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.

4. In order to ensure that the license transfer/amendment decision for Palisades Nuclear Plant protects the interests of DWM's members in a safe and healthy environment, DWM seeks to intervene on behalf of its members Alice Hirt and Joseph C. Kirk, whose declarations are attached.

5. DWM intends, on behalf of its members, to take all legal actions necessary to ensure the fairness and integrity of the license amendment proceeding and to have the NRC consider all issues bearing on the safety and health of Don't Waste Michigan the broader public, and the physical environment.

6. I hereby declare under penalty of perjury that the foregoing facts are true and correct and that any expressions of opinion are based on my judgment.

7. Further Declarant saith naught.

Don't Waste Michigan

2/21/2021
Date

By Michael Keegan
Michael Keegan, Convenor

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF ALICE HIRT IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes Alice Hirt and makes the following statements under penalty of perjury:

1) My name is Alice Hirt. I am an adult citizen of the State of Michigan. I also am a member of Don't Waste Michigan, hereafter referred to as "Petitioner."

2) My residence is located at 6677 Summit View, Holland, MI 49024, which is located 36.5 straight-line miles from the Palisades Nuclear Plant ("Palisades"). I live on a bluff overlooking Lake Michigan and in the warm season wade or swim in the Lake and go boating with friends or relatives.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled or will travel into Lake Michigan.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by the radioactive releases, and that I might suffer irreparable damage to real and personal property located at my residence.

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Don't Waste Michigan, a nonprofit Michigan grassroots organization that advocates against continued use of commercial nuclear power and in favor of nonnuclear energy technologies. My interests will not be adequately represented absent my legal intervention and without the opportunity of Don't Waste Michigan to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

2/19/21
Date

Alice Hirt
Signature

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF JOSEPH C. KIRK IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes Joseph C. Kirk and makes the following statements under penalty of perjury:

1) My name is Joseph C. Kirk. I am an adult citizen of the State of Michigan. I also am a member of Beyond Nuclear, hereafter referred to as "Petitioner."

2) My residence is located at 29794 Lake Bluff, Palisades Park, MI 49043, which is located .8 straight-line miles from the Palisades Nuclear Plant ("Palisades"). My home is near Lake Michigan and in the warm season I walk on the beach and wade in the Lake within a few hundred yards of Lake Michigan and go boating with friends or relatives.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into. Lake Michigan during decommissioning.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by airborne or waterborne radioactive releases, and that I might suffer irreparable damage to real and personal property located at my residence.

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Don't Waste Michigan ("DWM"), a 30-year-old grassroots nonprofit corporation headquartered in Monroe, Michigan that works to end various incarnations of commercial nuclear power generation and radioactive waste on grounds of public health and safety, and engages in public education and legal and administrative advocacy in licensing proceedings. My interests will not be adequately represented absent my legal intervention and without the opportunity of DWM to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

8) Further the Declarant saith naught.

February 22, 2021
Date

Joseph C. Kirk
Joseph C. Kirk

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

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DECLARATION OF AUTHORIZED OFFICER OF MICHIGAN SAFE ENERGY FUTURE IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR PLANT LICENSE TRANSFER PROCEEDING

Under penalty of perjury, I, Bette Pierman ("Declarant"), declare as follows:

1. I am the President of Michigan Safe Energy Future ("MSEF"), a Michigan grassroots organization. I am authorized to sign this Declaration.

2. MSEF opposes the transfer of the Nuclear Regulatory Commission-issued Palisades Nuclear Plant license to Holtec International and/or Holtec Decommission International, LLC.

3. MSEF is a n 8 -year-old grassroots association with over 30 members in southern, central and western Michigan. MSEF is headquartered at 2033 Paw Paw Avenue, Benton Harbor, MI 49022. MSEF is working to end the use of commercial nuclear power generation and engages in public education and legal and administrative advocacy in licensing proceedings. MSEF also advocates for measures to protect the health and safety of its members and the southwestern Michigan public from radiological injury.

4. In order to ensure that the license transfer/amendment decision for Palisades Nuclear Plant protects the interests of MSEF's members in a safe and healthy environment, MSEF seeks to intervene on behalf of its members Ann Scott and James Scott, whose declarations are attached.

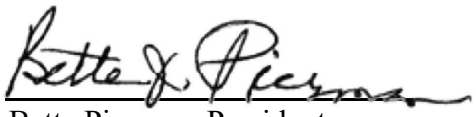
5. MSEF intends, on behalf of its members, to take all legal actions necessary to ensure the fairness and integrity of the license amendment proceeding and to have the NRC consider all issues bearing on the safety and health of MSEF members, the broader public, and the physical environment.

6. I hereby declare under penalty of perjury that the foregoing facts are true and correct and that any expressions of opinion are based on my judgment.

7. Further Declarant saith naught.

Michigan Safe Energy Future

February 22, 2021
Date

By 
Bette Pierman, President

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF ANN SCOTT IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes Ann Scott and makes the following statements under penalty of perjury:

1) My name is Ann Scott. I am an adult citizen of the State of Michigan. I also am a member of Michigan Safe Energy Future, hereafter referred to as "Petitioner."

2) My residence is located at 80014 Ramblewood Hill, Covert, MI 49043, which is located 1.2 straight-line miles from the Palisades Nuclear Plant ("Palisades"). My home is near Lake Michigan and in the warm season I walk on the beach and wade in the Lake within a few hundred yards of Lake Michigan and go boating with friends or relatives.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into. Lake Michigan during decommissioning.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by airborne or waterborne radioactive releases, and that I might suffer irreparable damage to real and personal property located at my residence.

AES

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Michigan Safe Energy Future ("MSEF"), a grassroots association of people in western and southwestern Michigan who since 2013 have advocated for the permanent shutdown of Palisades Nuclear Plant and replacement of nuclear and natural gas power generation with safe and renewable nonnuclear energy technologies. My interests will not be adequately represented absent my legal intervention and without the opportunity of MSEF to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

8) Further the Declarant saith naught.

2/22/21
Date

Ann E. Scott
Ann Scott

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	Docket No. 50-255 NRC–2021–0036
Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International, and Holtec Decommissioning International, LLC	)	February 24, 2021
(Palisades Nuclear Plant)	)	

* * * * *

DECLARATION OF JAMES SCOTT IN SUPPORT OF PETITION FOR LEAVE TO INTERVENE IN PALISADES NUCLEAR POWER PLANT LICENSE TRANSFER PROCEEDING

Now comes James Scott and makes the following statements under penalty of perjury:

1) My name is James Scott. I am an adult citizen of the State of Michigan. I also am a member of Michigan Safe Energy Future, hereafter referred to as "Petitioner."

2) My residence is located at 80014 Ramblewood Hill, Covert, MI 49043, which is located 1.2 straight-line miles from the Palisades Nuclear Plant ("Palisades"). My home is near Lake Michigan and in the warm season I walk on the beach and wade in the Lake within a few hundred yards of Lake Michigan and go boating with friends or relatives.

3) I understand that Entergy Nuclear Operations, Inc. and/or Entergy Nuclear Palisades, LLC are seeking to transfer the NRC license for Palisades to Holtec International and Holtec Decommissioning International, LLC.

4) I oppose the transfer because of concerns over Holtec's performance as a corporation. I do not have confidence that companies owned or managed by Holtec will conduct the decommissioning of the Palisades plant in a manner that protects the environment, public health and safety. I am concerned that there might be groundwater contamination in the plant complex that has traveled into, or will travel into. Lake Michigan during decommissioning.

5) I am concerned that if a spent fuel accident were to occur at Palisades Nuclear Plant involving a spent fuel storage pool fire or canister drop accident, or a serious breach of the dozens of spent fuel storage casks maintained at Palisades, that my family and/or I might be killed, injured or sickened by airborne or waterborne radioactive releases, and that I might suffer irreparable damage to real and personal property located at my residence.

6) I am also worried about radioactive leaks and contamination from the routine handling and storage, whether in a spent fuel pool or dry storage casks or canisters, of spent nuclear fuel and other irradiated materials at Palisades during decommissioning. I am further concerned that the spent fuel pool will be dismantled and there will be no means at the Palisades site to stabilize, unload or fix defects in a canister or cask used for spent nuclear fuel.

7) I request leave to intervene in this license transfer and/or amendment proceeding and to have my interests advanced and represented by Michigan Safe Energy Future ("MSEF"), a grassroots association of people in western and southwestern Michigan which since 2013 has advocated for the permanent shutdown of Palisades Nuclear Plant and replacement of nuclear and natural gas power generation with safe and renewable nonnuclear energy technologies. My interests will not be adequately represented absent my legal intervention and without the opportunity of MSEF to participate as a full party in this license transfer and/or amendment proceeding on my behalf.

8) Further the Declarant saith naught.

2/22/21
Date

James Scott