

From: Kevin Kamps <kevin@beyondnuclear.org>
Sent: Tuesday, March 4, 2025 12:05 AM
To: PalisadesRestartEnvironmental Resource
Subject: [External_Sender] FINAL comments from Beyond Nuclear
Attachments: 3 3 25 final KK BN re NRC EAFONSI.pdf

Attached

The previous send a few minutes ago was a draft version, sent by mistake. This attached is the final version.

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Beyond Nuclear aims to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abolish both to safeguard our future. Beyond Nuclear advocates for an energy future that is sustainable, benign and democratic.

Federal Register Notice: 90FR8721
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BEYOND NUCLEAR COMMENTS ON NRC/DOE EA/FONSI RE: PALISADES REACTOR RESTART

PREPARED BY KEVIN KAMPS, RADIOACTIVE WASTE SPECIALIST, BEYOND NUCLEAR, ON BEHALF OF OUR MEMBERS AND SUPPORTERS IN MICHIGAN, AS WELL AS IN INDIANA, ILLINOIS, AND WISCONSIN, ALONG THE LAKE MICHIGAN SHORELINE, AND FURTHER DOWNSTREAM THROUGHOUT THE GREAT LAKES BASIN WATERSHED

MARCH 3, 2025

COMMENTS ON: U.S. Nuclear Regulatory Commission and U.S. Department of Energy's (Cooperating Agency) Draft Environmental Assessment and Draft Finding of No Significant Impact for the Palisades Nuclear Plant Reauthorization of Power Operations Project; ML24353A157; NRC CEQ ID: EAXX-429-00-000-1734394646; DOE ID: DOE/EA-2285; Docket Number: 050-0255; Issued: January 2025 Draft for Comment.

Docket ID NRC-2024-0076

Submitted via email to: <PalisadesRestartEnvironmental@nrc.gov>

EXECUTIVE SUMMARY/OVERVIEW OF BEYOND NUCLEAR'S COMMENTS:

(1.) **We request that the NRC do an Environmental Impact Statement (EIS).** This Environmental Assessment is not sufficient. This closed-for-good-reactor restart scheme is unprecedented. It is unneeded. It is insanely expensive for the public: Holtec has requested a total of more than \$8 billion, and still counting, in federal, state, and ratepayer bailouts, and has already been awarded \$3.12 billion in hard-earned taxpayer money. Palisades Nuclear Plant's (PNP) restart is extremely risky for human health and the environment, as well as safety and security. A PNP reactor core meltdown is an existential risk for the Great Lakes, 21% of the planet's surface fresh water, 84% of North America's, and 95% of the U.S.A.'s, drinking water supply -- and so much more -- for 40+ million people in 8 U.S. states, 2 Canadian provinces, and a large number of Indigenous Nations. NRC's CRAC-II report (Calculation of Reactor Accident Consequences, also known as the 1982 Sandia Siting Study, or NUREG/CR-2239) predicted that a Palisades atomic reactor core meltdown would cause: 1,000 acute radiation poisoning deaths; 7,000 radiation injuries; 10,000 latent cancer fatalities; and \$52.6 billion in property damage. Population growth over the past four decades means casualties would now be even worse, as more people are in harm's way. Adjusting for inflation means property damage would now exceed \$168 billion, expressed in Year 2023 dollar values. PNP was a lemon from the start, and after more than a half-century of operations, is now dangerously age-degraded. Multiple safety-significant systems, structures, and components are at increasingly high risk of catastrophic breakdown, which could lead to a large-scale release of hazardous radioactivity into the environment: the worst neutron-embrittled reactor pressure vessel in the country, and perhaps the world, at risk of pressurized thermal shock through-wall fracture; steam generators and reactor vessel closure head that have needed replacement for two decades; sumps and strainers at risk of clogging and blocking emergency core cooling system flow; the worst Operating Experience

with Control Rod Drive Mechanism seal leakage in industry; the list goes on and on. Holtec's neglect of vital safety maintenance since PNP's permanent shutdown has made matters even worse. For example, steam generator tube degradation accelerated dramatically from 2022-2024, because Holtec neglected to place them in chemically preservative wet lay up. The very significant impacts, and catastrophic risks, of this major federal action demand an EIS, in order to be compliant with the National Environmental Policy Act (NEPA). Once NRC publishes the requested EIS, **we request a comment period of six months**, in order to adequately address the large number of very significant impacts and risks of this major federal action.

Furthermore, we contest NRC's Finding of No Significant Impact (FONSI). Are NRC and DOE saying that the Great Lakes region, and the humans and other living things that call it home, are not significant? This is the only logical explanation for DOE and NRC's clearly erroneous FONSI, given the very large negative impacts on and risks to health, environment, and safety, that a restart of the Palisades atomic reactor would have.

(2.) In fact, **we request that a Programmatic EIS be performed, in order to comply with NEPA.** As stated by multiple public commenters at the environmental scoping public comment meeting convened by NRC and DOE at Benton Harbor, Michigan on July 11, 2024, since the precedent being set at the Palisades Nuclear Plant, in terms of closed for good atomic reactor restarting, a Programmatic EIS should be required. This lower-level EA is insufficient. Other permanently shutdown reactors already seeking restart permission from NRC, and very likely bailouts from DOE, other federal agencies, state governments, and/or ratepayers currently include: Three Mile Island Unit 1 in Pennsylvania (recently preposterously renamed the Christopher Crane Safe Energy Center, likely an effort to shed the radioactive stigma of Three Mile Island Unit 2's 50% meltdown on 3/28/1979, considered by many to be the worst reactor disaster in U.S. history; Duane Arnold in Iowa, which had a close call with meltdown in August, 2019, after major damage from a derecho, is not far behind. Additional "zombie reactors" in the U.S. include: Diablo Canyon Units 1 and 2 in California, surrounded by earthquake faults, which were supposed to close for good in 2024, and 2025, respectively; and Summer Units 2 and 3 in South Carolina, both abandoned midway through construction, in 2017, at a loss of more than \$9 billion to ratepayers. Given the precedent-setting nature of PNP's restart for all these other "zombie" reactors, with yet more possible in the future, a PEIS should be undertaken to comply with NEPA, and a six month public comment period set.

(3.) **The NRC and DOE EJ (Environmental Justice) analysis is deeply flawed, and its FONSI in grave error.** Communities with EJ concerns that would be impacted and put at risk by the Palisades atomic reactor restart, as well as the so-called Small Modular Reactor (SMR) new builds, include the large number of Indigenous Nations mentioned in the EA, including the Pokagon Potawatomi (centered in Dowagiac, Michigan), the Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians (Gun Lake Tribe, based in Shelbyville, Michigan), and the Nottawaseppi Huron Band of the Potawatomi (located at the Pine Creek Indian Reservation near Athens, Michigan), to name but three. In addition to the radioactive risks imposed on Anishinaabe Aki (First Peoples Land) by the Palisades atomic reactor, there is also the high risk that new construction at the PNP site -- such as for radioactive waste storage, and SMR new builds -- will disturb or even destroy Indigenous burials or other cultural sites.

Other communities with EJ concerns at/near PNP include the African American population and low-income population of Covert Township, Michigan, where Palisades is located. The percentage of the population in Covert that is Black is significantly higher than the state and national averages. Covert also has a high poverty rate. This begs the question: if Palisades is so good for the economy, why is the poverty rate in its hometown so high?

Hazardous radiation releases from "routine" operations at PNP, and God forbid from a catastrophe, disproportionately impact population centers in Covert, including the 120-year old Palisades Park Country Club resort community, immediately south of PNP, which reports a shockingly high number of thyroid cancer cases, a rare disease for which a single case would be unusual and alarming, as opposed to dozens reported, just among 200 households. That NRC, DOE, and even the Michigan Department of Health and Human Services seem to be willfully blind to such health impacts. Are the thyroid cancer cases even recorded in Covert, Van Buren County, and/or Michigan, or are they registered in the home town, county and state where PPCC residents spend most of the year? If this is the loophole being used to downplay thyroid cancer at PPCC, it calls to mind the phrase "Lies, Damn Lies, and Statistics." Such health impacts and risks also likely disproportionately impact the Black community in Covert Township, just a short distance away from PNP. This also threatens Covert's rich African American cultural heritage.

Similarly, Benton Harbor, Michigan, located midway between the Palisades and Cook nuclear power plants (about 15 miles from each), has a large percentage of African American residents, compared to the state and national averages, and also has a relatively high poverty rate.

Yet another category of communities with EJ concerns is the relatively large Latin American population of southwest Michigan, including seasonal/migrant workers, given the large concentration of agriculture in the region, as well as permanent residents.

Perhaps it should come as no surprise that NRC sees no disproportionate impact on EJ communities in southwest Michigan from the Holtec schemes. NRC came to the same conclusion in majority-minority (Latino and Indigenous) New Mexico, where Holtec wants to construct and operate the world's single largest high-level radioactive waste dump. Similarly, DOE sees no disproportionate impact on the Western Bands of the Shoshone Nation of Indians, whose land at Yucca Mountain, Nevada has not only been targeted for the national high-level radioactive waste dump, but has also been used for a very large number of nuclear weapons tests.

(4.) **Radioactive Waste concerns:** PNP already has more than 900 metric tons of irradiated nuclear fuel on-site, from 51 years of reactor operations. If restarted, PNP would generate around 15 metric tons more each and every year, from 2025 to 2051. Its SMR-300s would generate 2 to 30 times more radioactive waste, per unit of electricity generated, due to loss of economy of scale, according to President Obama's former NRC chair, Allison Macfarlane, and former U.S. Nuclear Waste Technical Review Board chair, Rodney Ewing. PNP's indoor wet storage pool still holds around two-thirds, or more, of the irradiated nuclear fuel on-site, at risk of a catastrophic fire that could be worse than a reactor core meltdown. The "overflow storage" for the remaining one-third of the irradiated nuclear fuel on-site is in dry casks of questionable structural integrity, including an admittedly defective one that was supposed to have been unloaded 31 years ago, but never has been. Holtec's dry casks, with unresolved quality assurance violations, will exacerbate

these concerns, including the fact that PNP's dry cask storage pads are in violation of earthquake safety regulations, according to an NRC whistleblower. Holtec proposes high-level radioactive waste barges on Lake Michigan, to the Port of Muskegon, risking a sinking that could contaminate the drinking water supply for 16 million people in 4 states.

(5.) **Endangered Species Act and Coastal Zone Management Act concerns:** We object to NRC and DOE's NLAA (may affect, not likely to adversely affect) and NE (No effect) FONSI conclusions for a large number of endangered species, threatened species, and species of concern -- both plant and animal, both terrestrial and aquatic -- for which the PNP site and its vicinity is habitat or potential habitat. The Critical (Sand) Dune Area, on the Great Lakes shore, is a unique and fragile habitat and ecosystem, with remarkable biological diversity. The State of Michigan has failed since 1967 to protect this very special place from the severe impacts, hazards and risks from the Palisades atomic reactor. PNP should be retired, as long planned, and decommissioned, including comprehensive clean up of the radioactive contamination, and then the site allowed to heal, after six decades of abuse.

(6.) **Holtec's criminality, corruption, dishonesty, greed, incompetence, inexperience, and untrustworthiness** should disqualify it from NRC, DOE, USDA, and State of Michigan approvals for reactor restart, SMR new builds, and the more than \$16 billion in taxpayer and ratepayer bailouts it has requested for both reactor restart, and SMR new builds. Holtec took over PNP in the first place through a bait and switch trick, con job, and big lie: that it would decommission it, not restart it and build two additional atomic reactors on the tiny 432-acre site.

(7.) **NRC's Purpose and Need Statement is unacceptably shallow and woefully inadequate.** NRC has stated that a recently enacted State of Michigan "clean energy" law mandates the Palisades restart. But nuclear power is not clean — far from it -- despite misguided and wrongheaded claims in the state law. Greenhouse gas emissions, radioactivity releases, and toxic chemical impacts take place at every stage of the uranium fuel chain. Besides, various other supposed reasons have been given, as by Holtec and Michigan Governor Gretchen Whitmer, for Palisades' restart, from supposedly restoring good paying jobs, to electricity needed for Artificial Intelligence (A.I.) data centers, energy storage battery facilities, charging the electric vehicle fleet, climate mitigation, reliability of electricity supply and the electrical grid, etc. We challenge and rebut all these moving target, throwing-spaghetti-against-the-wall-to-see-what-sticks, supposed justifications for Palisades' restart, just below, although NRC and DOE did not even bring them up in the EA. Rather, the agencies only briefly mentioned Michigan's recently passed "clean energy" law, and also very briefly mentioned Holtec's purported claims of electric reliability enhancement, and supposed independence from energy imports from other states/provinces.

Rebuttals of these supposed purposes and needs:

Re: AI data centers, recent news about China's DeepSeek AI system sent shock waves around the world, in terms of how efficiently it could be operated. That is, massive expansions of electricity supply would not be needed.

Besides, where is the NEPA-compliant treatment of these nascent AI data center proposals? Treating AI data centers as a done deal, somehow justifying massive increases in electricity supply, including from restarting closed for good, dangerously age-degraded atomic reactors like PNP, is putting the cart before the horse. This lemming-like societal rush, perhaps over a cliff edge, is unwise in the extreme, and illegal under NEPA's "hard look" requirement. We should resist the rush job, and question such proposals carefully.

Energy storage battery facilities could be supplied by renewables like wind and solar. They do not need to be supplied by electricity from PNP. Besides, the Power Purchase Agreement between Holtec and the rural electric co-ops, Wolverine in Michigan, and Hoosier in Indiana and Illinois, is supposedly for all, 100%, of PNP's electricity supply from 2025 to 2051. Are the rural electric co-ops associated with the purported AI data centers? If not, then there would be no PNP-generated electricity left over for use at AI data centers. If these rural electric co-ops are involved with powering ravenous AI data centers, how can \$1.3 billion in USDA grants be justified? Are AI data centers projects that USDA grants are meant to support? This makes no sense.

Re: charging electric vehicle fleets, renewables, backed up by energy storage battery facilities, could do this, instead of PNP.

Re: climate mitigation, the expert witness testimony provided by Dr. Mark Jacobson of Stanford University, in support of the environmental coalition opposing Palisades' restart before the NRC's Atomic Safety and Licensing Board, shows that renewables such as wind and solar are much more cost-effective and time-effective at reducing greenhouse gas emissions, than is restarting the PNP, and than are Small Modular Reactor new builds at Palisades and/or Big Rock Point, PNP's sibling atomic reactor site, 250 miles north, also on the Lake Michigan shore.

Re: reliability of electricity supply and the electrical grid, "the lights have stayed on" in Michigan since Entergy closed Palisades for good on May 20, 2022. This is because there is excess electricity on the grid, put in place to accommodate PNP's retirement, as long planned, as well as to accommodate other anticipated or unanticipated peaks in demand, or anticipated or unanticipated temporary shutdowns of electricity generators, or transmission disruptions, in the service area, as due to weather-related events, such as power outages due to ice storms, wind storms, blizzards, etc. Decentralization in the form of micro-grids is another alternative approach to electricity reliability. It is also ironic that Holtec, NRC and DOE are attempting to somehow claim the electric "reliability" high ground at PNP. PNP's 51 years of operations has a low ranking, compared to other nuclear power plants, in terms of capacity factor performance overall. Holtec has tried to portray the interlude between operations at PNP as a long-term refueling outage, instead of the unprecedented permanent-shutdown-reversal-back-to-operational-status that they actually seek. The now three year long and still counting shutdown further reduces PNP's overall capacity factor performance, even if and when it restarts.

Re: reducing the need for importation of electricity into Michigan, this is an ironic Purpose and Need argument to make, given that Holtec plans to export electricity to Indiana and Illinois, as well as to distant parts of Michigan, such as the northern part of the Lower Peninsula, under the PNP Power Purchase Agreement scheme. Why are Michigan state taxpayers being forced to

subsidize -- to the tune of \$300 million -- the purchase of extremely overpriced PNP electricity (57% or more above market rates, according to Holtec itself in its 7/5/22 bailout application to DOE), by rural electric co-ops in Indiana and Illinois? Why are American taxpayers from 47 other states being forced to pay nearly \$3 billion already, and perhaps additional billions of dollars more to come, for this extremely overpriced electricity to be consumed in MI, IN, and IL? If nuclear power is such a good idea, why can't it pay its own way in the competitive free market? It never has done so. It has had to be massively subsidized, for many decades, by the public. The nuclear power industry's campaign contributions to candidates for public office, its public relations/propaganda machine, and its lobbying juggernaut in the legislative and executive branches of state and federal governments, have effectively convinced our political leaders, from both major parties, to hand over the keys to the treasury to this already filthy rich special corporate interest. The nuclear power and nuclear weapons industries are flip sides of the same coin, which exacerbates this military-industrial complex dynamic. In the first independent investigation in the Japanese Parliament's post-World War II history, it concluded that the root cause of the Fukushima Daiichi nuclear catastrophe was collusion between the nuclear safety regulatory agency, the industry, and government officials. Such collusion exists in spades at Palisades, putting us all in peril, and the Great Lakes at existential risk.

(8.) NRC's Alternatives Analysis is unacceptably narrow in scope and woefully inadequate.

Alternatives for the generation of 800 Megawatts-electric of carbon-free *and nuclear-free* electricity generation should not be arbitrarily confined to the tiny 432-acre Palisades site. The alternatives of wind power (both on- and off-shore), solar power (both household/business-scale and industrial scale), and other renewable electricity generation sources should be given the "hard look" required under NEPA. So too should the potential for energy efficiency upgrades, to prevent unnecessary waste of electricity, and decrease demand. Energy storage technologies should also be analyzed as a complement to any intermittency issues associated with renewables like solar and wind.

We incorporate by reference, as if fully rewritten herein, the expert witness testimony of Dr. Mark Jacobson, posted online here:

{February 1, 2025: Beyond Nuclear, et al.'s legal counsel, Wally Taylor of Cedar Rapids, IA, and Terry Lodge of Toledo, OH, submitted expert witness testimony by Dr. Mark Jacobson, professor at Stanford U. and internationally renowned greenhouse gas emission reduction strategist, to the NRC ASLB: [Jacobson congressional testimony, dated Jan. 17, 2024, Seven Reasons Why New Nuclear Energy is an Opportunity Cost That Damages Efforts to Address Climate Change and Air Pollution](#); and [Jacobson book chapter, Dec. 22, 2019, Evaluation of Nuclear Power as a Proposed Solution to Global Warming, Air Pollution, and Energy Security](#).}

Amory Lovins, also a professor at Stanford University, and a founder of the Rocky Mountain Institute, has long asserted that nuclear power takes too long, and costs too much, making it a non-starter for climate mitigation, from a market perspective. He has been making such assertions for decades. He recently spoke about this (Press Briefing: Why Latest Nuclear Revival Is Already Doomed, October 3, 2024). The recording of the press briefing is posted online here:

<<https://www.youtube.com/watch?v=2u8PYEyqr14>>

We incorporate by reference, as if fully rewritten herein, the entirety of Amory Lovins' testimony above.

Lovins also testified about this subject matter at a Capitol Hill congressional briefing, Toward an Evidence-Based Nuclear Energy Policy; What Congress Needs to Know About Nuclear Decommissioning, Radioactive Waste, and Nuclear Energy as a Climate Strategy, on March 30, 2021. We incorporate by reference as if fully rewritten herein the entirety of Lovins' presentation recording, including his slideshow, posted online here:

<<https://www.eesi.org/briefings/view/033021nuclear>>

Dr. Arjun Makhijani, founder and president of the Institute for Energy and Environmental Research, and a Fellow of the American Physical Society, wrote an entire book on this subject matter, entitled Carbon-Free and Nuclear-Free: A Roadmap for U.S. Energy Policy. We incorporate by reference as if entirely rewritten herein the entirety of this book, and related publications, posted online here:

<<https://ieer.org/projects/carbon-free-nuclear-free/>>

These authors, scholars, and experts cited above provide extensive, comprehensive information about the alternatives that NRC and DOE should address in a higher level EIS/PEIS, namely renewables (solar, wind, etc.), efficiency, and storage, as ready, reliable, much more cost-effective, and time-effective, clean, safe and secure methods to mitigate the greenhouse gas emissions that cause global warming and climate chaos, as compared to the "zombie" reactor restart scheme at PNP, as well as to the SMR new builds scheme at Palisades and Big Rock Point.

None other than former Michigan Governor (and former Energy Secretary) Jennifer Granholm herself advocated in favor of developing off-shore wind power available to the Great Lakes State. A study by the Michigan State University Land Use Institute documented that more than 300,000 MW-e of off-shore wind power potential is available to be tapped on the Great Lakes. Gov. Granholm, in 2010, convened an advisory council re: this subject matter. As conveyed by James Clift -- a member of the off-shore wind power advisory council, as well as executive director of Michigan Environmental Council at the time -- in a presentation he made at a renewable energy summit in Southfield, Michigan in June 2010, Gov. Granholm's off-shore wind power advisory council advised some two-dozen criteria to guide the development of off-shore wind power on the Great Lakes. These included avoiding impacts on fisheries, avoiding aesthetic impacts, avoiding historic shipwrecks, etc. The council recommended three areas of the Great Lakes for off-shore wind, based on the two-dozen criteria: extreme southern Lake Michigan, not that far from PNP actually; extreme northern Lake Michigan, not that far from the Big Rock Point nuclear power plant site, actually; and Saginaw Bay, where it opens out into Lake Huron (fortunately, two reactors at the Midland nuclear power plant in that part of the state were blocked from operating, a tremendous environmental victory in the 1980s). Just tapping a very small percentage of the off-shore wind power potential available to Michigan on the Great Lakes would far surpass the 800 MW-e that a restarted PNP would provide, and would also far surpass

the additional nuclear megawattage that two SMR-300s at PNP would provide, and would also far surpass the nuclear megawattage one or more SMR-300s at Big Rock Point would provide. This off-shore wind power would also avoid reactor core meltdowns, radioactive waste fires, radioactivity releases from "routine reactor operations," radioactive leaks, spills, and contamination, radioactive waste generation, thermal wastewater, and toxic chemical releases at all these atomic reactors, and would do so cost- and time-effectively, compared to SMR new builds, and even the PNP restart scheme.

We incorporate by reference, as if fully rewritten herein, the following: Governor Granholm Signs Executive Order Creating Great Lakes Wind Council, February 06, 2009. It is posted online here:

<<https://www.michigan.gov/formergovernors/recent/granholm/press-releases/2009/02/06/granholm-signs-executive-order-creating-great-lakes-wind-council>>

Likewise, we incorporate by reference, as if fully rewritten herein, the following:

Report of the Michigan Great Lakes Wind Council, October 1, 2010.

It is posted online here:

<https://www.baycountymi.gov/uploads/GLOWreportOct2010_with%20appendices.pdf>

Why didn't NRC and DOE include a comprehensive analysis of off-shore wind power as an alternative to PNP restart in the EA? Why wasn't solar power (both household/business-scale, as well as utility-scale) comprehensively analyzed as an alternative? Why wasn't on-land wind power comprehensively analyzed? Why weren't energy efficiency and energy storage (such as batteries) comprehensively analyzed as an alternative, especially considering that battery storage has been touted as a supposed Purpose and Need for PNP restart?

(9.) **We support the No-Action Alternative:** No PNP restart should be allowed. Neither should SMRs be built at PNP or Big Rock Point. Rather, PNP's closure for good, and retirement, as well as decommissioning, as long planned and promised to Michiganders, and residents of neighboring states around Lake Michigan. NRC, which is mandated to protect public health and safety, as well as the environment, should not authorize the restart of the problem-plagued from the start, now severely age-degraded Palisades reactor, with multiple safety-significant systems, structures, and components at risk of breakdown, risking reactor core meltdown.

DOE should not risk vast sums of federal taxpayer money — \$1.52 billion, and still counting — on Holtec's scheme. Likewise, the U.S. Department of Agriculture (USDA) should not risk \$1.3 billion on this scheme, namely grants to reimburse the Power Purchase Agreement (PPA) purchasers (the rural electric co-ops Wolverine, in Michigan, and Hoosier in Indiana and Illinois) for 25% of the costs of the exorbitantly overpriced electricity from Holtec's Palisades reactor, from 2025 to 2051. The electricity will cost 57%, or more, above market rates, according to Holtec itself, in its initial PNP restart strategy document and bailout application submitted in secret to DOE on 7/5/22, just a week after taking ownership of PNP, supposedly for

decommissioning purposes only, which was a big lie. Holtec has never operated any reactor, let alone a nuclear lemon from the get-go like Palisades, which is now severely, dangerously age-degraded.

(10.) Two SMR-300s being constructed and operated on the tiny 432-acre PNP site, alongside 80 years altogether of extended operations, from 1971 to 2051, at the “zombie” reactor, represents a major cumulative impact and effect. The way NRC essentially ignores all past public comments provided at past proceedings, like the 2006 license extension SEIS comments for the 60-year license at PNP (1971-2011), is objectionable. It’s like NRC was born yesterday, and expects us to be as willfully ignorant and blind as they are, in regards to such large and cumulative impacts and effects at, near, and from PNP. Tremendous good faith effort was put into our environmental coalition’s 2006 SEIS public comments. Yet NRC ignored most to all of them. For that reason, they are still relevant. Just because NRC cites the 2006 SEIS repeatedly throughout this EA, does not mean NRC has adequately addressed those comments or concerns, or addressed them at all. For this reason, we incorporate by reference, as if fully rewritten herein, the entirety of our environmental coalition’s comments on the draft SEIS from 2006. Those comments are posted online here, at the following two links:

May 18, 2006: [Group comments, submitted by a coalition of organizations including NIRS and numerous grassroots groups in Michigan and other U.S. states and Canadian provinces around the Great Lakes Basin, regarding NRC’s draft Environmental Impact Statement on the Palisades 20 year license extension. This coalition represents well over 200,000 residents of Michigan alone, in opposition to the dangerous extension of operations and waste generation at Palisades from 2011 to 2031.](#)

May 18, 2006: [Executive summary of coalition comments to NRC regarding its draft Environmental Impact Statement for the Palisades 20 year license extension.](#)

Additionally, even though NRC and DOE mention Holtec's proposed SMR new build scheme at the PNP site, the substance of the agencies' EA analysis of the cumulative impacts and effects from this additional scheme is woefully inadequate, to the point of illegal segmentation under NEPA law and court ruling precedents. This is another reason an EIS/PEIS is required.

[End of summary/overview of Beyond Nuclear’s comments. More detailed and extensive Beyond Nuclear comments follow, below.]

DETAILED COMMENTS

{Please note: NRC/DOE cut and pasted excerpts, below, appear as plain text. *[Beyond Nuclear’s comments appear as text in italics, within square brackets. **Added emphasis is so indicated.**]*}

PAGE 17 OF 242 ON PDF COUNTER (page xv)

bhp

break horsepower

[Should this instead read brake horsepower? Such technical terms, unfamiliar to most readers and members of the public, should be defined.]

P. 19/242 ON PDF COUNTER (page xvii)

N&S Report

New and Significant Report (from Holtec Decommissioning International, LLC [HDI])

[The actual title Holtec gave this document was very oddly worded; apparently, NRC has seen fit to help Holtec clear it up, by giving this document a more coherent title; NRC went so far as to accept Holtec's document in lieu of an Environmental Report, required under NEPA, which an environmental coalition intervening against the Palisades restart is contesting in Atomic Safety and Licensing Board proceedings.]

P. 21/242 ON PDF COUNTER (page xix)

TRO

total residual oxidant

[TRO, in the legal realm, stands for Temporary Restraining Order. The environmental coalition intervening against Holtec's Palisades Nuclear Plant (PNP) restart fully intends to take this matter to federal court, if and when necessary.]

PGS. 23-24/242 ON PDF COUNTER (pages 1-1 to 1-2)

[Entergy's closure of Palisades for good, on May 20, 2022, which it certified with NRC on June 13, 2022, was followed by Holtec's application to NRC for various waivers and exemptions to its so-called Operating License (one that no longer authorizes operation), to reflect the purported, supposed, promised decommissioning status of Palisades. But beginning a week after it acquired PNP, supposedly for decommissioning purposes only, Holtec has sought to restart the reactor. This has led to Holtec's attempt to get NRC to approve a growing number of License Amendment Requests, a license transfer request, an exemption request, as well as massive bailout requests, as to DOE, USDA, and the State of Michigan. This roller coaster ride, from operating to decommissioning, back to operating, represents significant waste, fraud, and abuse. All of Holtec's requested LARs, etc., cost significant time and money, including for the concerned public. NRC Commissioner Bradley Crowell was quoted in ExchangeMonitor in Feb. 2023, questioning why proponents of PNP reactor restart waited till the 11th hour, or the last second, to even bring up the concept of reactor restart — why didn't they start sooner? Governor Whitmer floated the trial balloon of not closing PNP, but rather operating it for

decades to come, on 4/20/22, just a month to the day before Entergy closed it for good. Although Holtec had secretly applied to DOE for many billions of dollars in bailouts on 7/5/22, just one week after taking over at PNP, the company would not go public with its restart plan announcement until 9/9/22. For many months and even years on end, first Entergy, and then Holtec, requested NRC grant license exemptions and waivers, reflecting the change from operational to decommissioning status at PNP. But beginning almost immediately after taking over PNP, Holtec has since also been attempting to reverse the actions and requests of Entergy and even of Holtec itself. Why has Holtec spoken out both sides of its mouth? These changes to the Operating License, all approved by NRC to reflect decommissioning status, only to be reversed again, taking not months but years, and demanding vast commitments of time and money, represent waste, fraud, and abuse on the part of Holtec, as well as a complicit NRC.

By the way, referring to it as an Operating License, or a Renewed Facility Operating License, which does not authorize operations, is quite Orwellian. Aren't federal agencies like NRC supposed to communicate in plain, intelligible language? If not, why not? Is NRC attempting to intentionally blur the lines between operational status and decommissioning status at PNP? How is such chaotic blurring of the lines not gaslighting of the public?]

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- The September 28, 2023, request for an exemption (Holtec 2023-TN10538) from the 10 CFR 50.82(a)(2) (TN249) restriction that prohibits reactor power operations and emplacement or retention of fuel in the reactor vessel to allow for a one-time rescission of the docketed 10 CFR 50.82(a)(1) certifications.
- The December 6, 2023 license transfer request (HDI 2023-TN10838) for Palisades, which seeks NRC consent to, and a conforming amendment for, a transfer of operating authority from HDI to Palisades Energy, LLC under the Palisades RFOL No. DPR-20 and the general license for the Palisades Independent Spent Fuel Storage Installation.
- Approval of requisite license amendment requests (LARs) to the Palisades RFOL—the identified requisite LARs are listed ***inTable*** 1-1 (see Section 1.1.1 of this environmental assessment [EA]). ***[Emphasis added]***

[As mentioned above, the inexplicable roller coaster ride from operating status at PNP, to decommissioning status, back to operating status — summarized by NRC above, has shown that Holtec's promise to decommission PNP was a con job, a bait and switch trick, a big lie. How can NRC, DOE, USDA, and the public trust this company, which has never operated an atomic reactor before, to restart and operate PNP for decades into the future in a way that is safe and protective of the environment and human health?

*Please note that **a space is needed, above, between in and Table**. Radioactivity can cause radiogenic insertions and deletions of vital components of DNA molecules, for example, resulting in genetic damage, birth defects, and cancer causation, but we didn't know it could delete needed spaces. Seriously though, given the high risks to the environment, human health, and public safety of the PNP restart scheme, and the large number of NRC and other federal agency staff listed as contributing to this EA, the public should be able to expect a high quality document, free from misspellings, bad grammar, etc.]*

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Hereinafter, Holtec Palisades (licensed owner), HDI (current licensed operator), and Palisades Energy, LLC (planned licensed operator upon approval of December 6, 2023 transfer request) are collectively referred to as Holtec. This EA will generally refer to Holtec without specifying which company, unless necessary.

[As we pointed out above, HDI (current licensed operator) refers to an Operating License that no longer authorizes operation. This is Orwellian, misleading, and confusing. Is it intentionally so?]

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Table 1-1 Licensing and Regulatory Actions for Palisades Nuclear Plant Post Decommissioning

Request to Reinstate the Palisades Emergency Plan to Support Resumption of Power Operations, dated May 1, 2024.

[As members of our environmental coalition have communicated to NRC in the past, although it fell on deaf ears, the emergency evacuation plan and other emergency preparedness plans at PNP never should have been ended, even during the decommissioning phase, as large-scale risks remain on-site, even without the reactor operating. For example, around two-thirds, or more, of all the highly radioactive irradiated nuclear fuel ever generated at PNP between 1971 and 2022, is still stored in in the indoor wet storage pool. The pool is vulnerable to loss of cooling water and its recirculation, which could result in a catastrophic irradiated nuclear fuel zirconium fire, and the release of nightmarish quantities of volatile and hazardous radioactive isotopes, such as Cesium-137, into the environment. Such a catastrophe could surpass even Chernobyl and Fukushima in terms of the severity of consequences downwind, downstream, up the food chain, and down the generations, as warned about by Alvarez, et al. in 2003, (Reducing the Hazards from Stored Spent Power-Reactor Fuel in the United States), the U.S. National Academies of Science in 2005 ("Safety and Security of Commercial Spent Nuclear Fuel"), Alvarez in 2011 (Spent Nuclear Fuel Pools in the U.S.: Reducing the Deadly Risks of Storage), von Hippel et al. in 2016 (Science, "Spent fuel fire on U.S. soil could dwarf impact of Fukushima: New study warns of millions relocated and trillion-dollar consequences," May 24, 2016), the U.S. National Academies of Science (Lessons Learned from the Fukushima Nuclear Accident for Improving Safety and Security of U.S. Nuclear Plants: Phase 2, 2016), etc. In fact, a two-day dangle of a fully-loaded, 107-ton container of irradiated nuclear fuel above the wet storage pool at PNP brought home such dangers. But the dry cask storage at PNP is also vulnerable to disastrous releases of hazardous radioactivity, as long warned about by members of our environmental coalition dating back to the early 1990s, and as warned about by such scholars are Dr. Gordon Thompson of Institute for Resource and Security Studies (IRSS) in January 2003 (ROBUST STORAGE OF SPENT NUCLEAR FUEL: A Neglected Issue of Homeland Security). This is why many members of our environmental coalition have called for Hardened On-Site Storage (HOSS) since 2002, but NRC and DOE, as well as industry, have ignored our dire warnings.

We wish that the State of Michigan at PNP in the present day would follow the model set by the State of Massachusetts in the 1970s and 1980s, when it resisted inadequate emergency planning at/near the Seabrook nuclear power plant in New Hampshire. But instead, since 4/20/22, when Gov. Whitmer floated the trial balloon of continuing to operate PNP instead of

retire it as planned, her office and even the state legislature have remained on the wrong side of history, something we hope will change in the future. By the way, this further undermines NRC's and DOE's purpose and need statement. Current State of Michigan policies could well change in the future, and hopefully will vis-a-vis PNP. Consider, for example, the global push back against nuclear power in the aftermath of the Fukushima Daiichi nuclear catastrophe in Japan, which began on March 11, 2011. Yet another reactor core meltdown, or highly radioactive waste fire, in the U.S. or even overseas, could well lead to a worldwide clamor against nuclear power, extending to Michigan and surrounding states, strong enough to force a restarted PNP back into retirement.]

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1.1.2 Proposed Action of the DOE

The DOE LPO's Federal action is a decision on providing Federal financial assistance for refueling and resumption of power generation activities at Palisades pursuant to Holtec's loan guarantee agreement with DOE that was issued pursuant to the Energy Policy Act of 2005.

[Members of our environmental coalition fought tirelessly against passage of the Energy Policy Act of 2005, for many long years. Ironically enough, the Energy Policy Act of 2005 was signed into law on August 8, 2005, which happened to be the deadline for our environmental coalition's petition to intervene and request for hearing regarding PNP's 2011-2031 license extension, which we opposed. One of the most important reasons we opposed this legislation was its authorization of the wrongheaded nuclear loan guarantee program. We also fought against the \$22.5 billion in nuclear loan guarantee appropriations, enacted into law on December 23, 2007. And we fought against enactment of the Inflation Reduction Act of 2022, which amended the Energy Policy Act of 2005's nuclear loan guarantee program. In the beginning, nuclear loan guarantees were supposed to be limited to innovative new designs for reactors, and only one reactor per design. This was soon weakened by DOE to allow for multiple reactors of the same design. But the Inflation Reduction Act of 2005 weakened the loan guarantee program dramatically further, no longer requiring innovative new designs. Now, DOE has been authorized to award a \$1.52 billion loan guarantee for a jalopy of a reactor, designed in the mid-1960s, constructed beginning in 1967, operated from 1971 to 2022, which was a nuclear lemon from the beginning, and now is very severely and dangerously age-degraded, including major safety-significant systems, structures, and components. PNP's restart risks EXTRA LARGE, most significant impacts on the environment, such as putting the Great Lakes at existential risk, as well as all who depend on them, and call them home.]

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1.2.3 Need for the Project

Regarding the need for clean energy, Holtec cites the State of Michigan's Public Acts of 2023, Act No. 235 (enrolled Senate Bill 271) (State of Michigan 2023-TN10671), which establishes a clean energy standard for electric providers to provide at least 80 percent clean energy by 2035 and 100 percent by 2040. Michigan's Act No. 235 defines clean energy as including a system that "Generates electricity or steam without emitting greenhouse gas, including nuclear generation."

In September 2023, Palisades Energy, LLC, and Wolverine Power Cooperative formalized a power purchase agreement (PPA) under which Wolverine Power Cooperative agreed to purchase up to two-thirds of the output from Palisades and the balance would be purchased by Hoosier Energy for the foreseeable future. This PPA is the economic impetus for Holtec's request to restart Palisades. The PPA also provides the option to include expected power output from the planned small modular reactors (SMRs) at Palisades (Holtec 2023-TN10540). As opposed to being a regulated supplier providing wholesale power for dispatch by the independent system operator, the PPA would make Palisades a merchant generator and therefore not be directly subject to Michigan's integrated resource planning process or a Certificate of Need ruling by the Michigan Public Service Commission (HDI 2024-TN10670: RAI-GEN-2). Holtec also states that repowering of Palisades will greatly enhance electric reliability by generating consistent and carbon-free energy in Michigan and will decrease Michigan's reliance on energy imports (Holtec 2023-TN10540).

[As we stated in our Overview/Summary above:

NRC's Purpose and Need statement is unacceptably shallow. *NRC has stated that a recently enacted State of Michigan "clean energy" law mandates the Palisades restart. But nuclear power is not clean — far from it. Besides, various supposed reasons have been given for Palisades' restart, from restoring good paying jobs, to electricity needed for Artificial Intelligence (A.I.) data centers, energy storage battery facilities, charging the electric vehicle fleet, climate mitigation, reliability of electricity supply and the electrical grid, etc. All these moving target, throwing-spaghetti-against-the-wall-to-see-what-sticks, supposed justifications for Palisades' restart will be challenged and rebutted in more detail below, even though NRC did not even bring them up, but rather only briefly mentioned Michigan's recently passed "clean energy" law, and also very briefly mentioned Holtec's purported claims of electric reliability and supposed independence from energy imports, and also very briefly mentioned Holtec's purported claims of electric reliability and supposed independence from energy imports.*

Re: AI data centers, recent news about China's DeepSeek AI system sent shock waves around the world, in terms of how efficiently it could be operated. That is, massive expansions of electricity supply would not be needed.

Besides, where is the NEPA-compliant treatment of these nascent AI data center proposals? Treating AI data centers as a done deal, somehow justifying massive increases in electricity supply, including from restarting closed for good, dangerously age-degraded atomic reactors like PNP, is putting the cart before the horse. This lemming-like societal rush, perhaps over a cliff edge, is unwise in the extreme. We resist and question it.

We incorporate by reference as if fully rewritten herein the following news article:

<https://beyondnuclear.org/do-ai-data-centers-justify-zombie-reactors-smr-new-builds/>

Energy storage battery facilities could be supplied by renewables like wind and solar, and many others. They do not need to be supplied by electricity from PNP. Besides, the Power Purchase Agreement between Holtec and the rural electric co-ops, Wolverine in Michigan, and Hoosier in Indiana and Illinois, is supposedly for all, 100%, of PNP's electricity supply from 2025 to 2051, if not longer. Are the rural electric co-ops associated with the purported AI data centers? If not, then there would be no PNP-generated electricity left over for use at AI data centers. If these rural electric co-ops are involved with powering ravenous AI data centers, how can \$1.3 billion

in USDA grants be justified? Are AI data centers projects that USDA grants are meant to support? This makes no sense.

Re: charging electric vehicle fleets, renewables, backed up by energy storage battery facilities, could do this, instead of PNP.

Re: climate mitigation, the expert witness testimony provided by Dr. Mark Z. Jacobson of Stanford University, in support of the environmental coalition opposing Palisades' restart before the Atomic Safety and Licensing Board, shows that renewables such as wind and solar, backed up by energy storage, are much more cost-effective and time-effective at reducing greenhouse gas emissions, than is restarting the PNP, and than are Small Modular Reactor new builds at Palisades and/or Big Rock Point.

We incorporate by reference, as if fully rewritten herein, the expert witness testimony of Dr. Jacobson, posted online here:

{February 1, 2025 UPDATE: Beyond Nuclear, et al.'s legal counsel, Wally Taylor of Cedar Rapids, IA, and Terry Lodge of Toledo, OH, submitted a notice and expert witness testimony by Dr. Mark Jacobson, professor at Stanford U. and internationally renowned greenhouse gas emission reduction strategist, to the NRC ASLB: [Notice](#); [Jacobson congressional testimony, dated Jan. 17, 2024, Seven Reasons Why New Nuclear Energy is an Opportunity Cost That Damages Efforts to Address Climate Change and Air Pollution](#); and [Jacobson book chapter, Dec. 22, 2019, Evaluation of Nuclear Power as a Proposed Solution to Global Warming, Air Pollution, and Energy Security](#).}

Amory Lovins, also a professor at Stanford University, and a founder of the Rocky Mountain Institute, has long asserted that nuclear power takes too long, and costs too much, to qualify as a good idea for climate mitigation. He has been making such assertions for decades. He recently spoke about this (Press Briefing: Why Latest Nuclear Revival Is Already Doomed, October 3, 2024). The recording of the press briefing is posted online here:

<<https://www.youtube.com/watch?v=2u8PYEyqr14>>

We incorporate by reference, as if fully rewritten herein, the entirety of Amory Lovins' testimony above.

Lovins also testified about this subject matter at a Capitol Hill congressional briefing, Toward an Evidence-Based Nuclear Energy Policy; What Congress Needs to Know About Nuclear Decommissioning, Radioactive Waste, and Nuclear Energy as a Climate Strategy, on March 30, 2021. We incorporate by reference as if fully rewritten herein the entirety of Lovins' presentation recording, including his slideshow, posted online here:

<<https://www.eesi.org/briefings/view/033021nuclear>>

Dr. Arjun Makhijani, founder and president of the Institute for Energy and Environmental Research, and a Fellow of the American Physical Society, wrote an entire book on this subject matter, entitled Carbon-Free and Nuclear-Free: A Roadmap for U.S. Energy Policy. We

incorporate by reference as if entirely rewritten herein the entirety of this book, and related publications, posted online here:

<<https://ieer.org/projects/carbon-free-nuclear-free/>>

These authors and experts cited above provide extensive, comprehensive information about the alternatives that NRC and DOE should address in a higher level EIS, namely renewables (solar, wind, etc.), efficiency, and storage, as ready, reliable, much more cost-effective, and time-effective, clean, safe and secure methods to mitigate the greenhouse gas emissions that cause global warming and climate chaos, as compared to the zombie reactor restart scheme at PNP, as well as to the SMR new builds scheme at Palisades and Big Rock Point.

None other than former Michigan Governor (and former Energy Secretary) Jennifer Granholm herself advocated in favor of developing off-shore wind power available to the Great Lakes State. A study by the Michigan State University Land Use Institute documented that more than 300,000 MW-e of off-shore wind power potential is available to be tapped on the Great Lakes. Gov. Granholm, in 2010, convened an advisory council re: this subject matter. As conveyed by James Clift, a member of the council at the time, in a presentation he made at a renewable energy summit in Southfield, Michigan in June 2010, the council advised some two-dozen criteria to guide the development of off-shore wind power on the Great Lakes. These included avoiding impacts on fisheries, avoiding aesthetic impacts, avoiding historic shipwrecks, etc. The council recommended three areas of the Great Lakes for off-shore wind, based on the two-dozen criteria: extreme southern Lake Michigan, not that far from PNP actually; extreme northern Lake Michigan, not that far from the Big Rock Point nuclear power plant site, actually; and Saginaw Bay, where it opens out into Lake Huron. Just tapping a very small percentage of the off-shore wind power potential available to Michigan on the Great Lakes would far surpass the 800 MW-e that a restart PNP would provide, and far surpass the additional nuclear megawattage that two SMR-300s at PNP would provide, and would far surpass the nuclear megawattage one or more SMR-300s at Big Rock Point would provide. This off-shore wind power would also avoid reactor core meltdowns, radioactive waste fires, radioactivity, thermal wastewater, and toxic chemical releases at all these atomic reactors, and would do so cost- and time-effectively, compared to SMR new builds, and even the PNP restart.

We incorporate by reference, as if fully rewritten herein, the following: Governor Granholm Signs Executive Order Creating Great Lakes Wind Council, February 06, 2009. It is posted online here:

<<https://www.michigan.gov/formergovernors/recent/granholm/press-releases/2009/02/06/granholm-signs-executive-order-creating-great-lakes-wind-council>>

Likewise, we incorporate by reference, as if fully rewritten herein, the following:

Report of the Michigan Great Lakes Wind Council, October 1, 2010.

It is posted online here:

<https://www.baycountymi.gov/uploads/GLOWreportOct2010_with%20appendices.pdf>

Why didn't NRC and DOE include a comprehensive analysis of off-shore wind power as an alternative to PNP restart in the EA? Why wasn't solar power (both household/business-scale, as well as utility-scale) comprehensively analyzed as an alternative? Why wasn't on-land wind power comprehensively analyzed? Where weren't energy efficiency and energy storage (such as batteries) comprehensively analyzed as an alternative, especially considering that battery stored has been trotted out as a supposed Purpose and Need for PNP restart?

And, as stated by multiple public commenters at the environmental scoping public comment meeting convened by NRC and DOE at Benton Harbor, Michigan on July 11, 2024, since the precedent being set by PNP, in terms of closed for good reactor restart, a Programmatic EIS should be required, not this low-level EA. Other closed for good reactors already seeking restart permission from NRC, and very likely bailouts from DOE, other federal agencies, and state governments, currently include: Three Mile Island Unit 1 in Pennsylvania (recently preposterously renamed the Christopher Crane Safe Energy Center, likely an effort to shed the radioactive stigma of the Three Mile Island Unit 2 50% meltdown of 3/28/1979, considered by many to be the worst reactor disaster in U.S. history; Duane Arnold in Iowa is not far behind. Additional "zombie reactors" in the U.S. include Diablo Canyon Units 1 and 2 in California, which were supposed to close for good in 2024, and 2025, respectively, as well as Summer Units 2 and 3 in South Carolina, both abandoned midway through construction, in 2017. Given the precedent-setting nature of PNP's restart for all these other "zombie reactors," with yet more possible in the future, a PEIS should be undertaken to comply with NEPA.

Re: reliability of electricity supply and the electrical grid, "the lights have stayed on" in Michigan since Entergy closed Palisades for good on May 20, 2022. This is because there is excess electricity on the grid, put in place to accommodate PNP's closure for good, as long planned, as well as to other anticipated or unanticipated peaks in demand, or anticipated or unanticipated temporary shutdowns of electricity generators in the service area, as due to weather events, such as ice storms, wind storms, blizzards, etc.

Re: reducing need for importation of electricity into Michigan, this is an ironic Purpose and Need argument to make, given that Holtec plans to export electricity to Indiana and Illinois, as well as to distant parts of Michigan, such as the northern part of the Lower Peninsula, under the PNP PPA scheme. Why are Michigan state taxpayers, as well as American taxpayers from 48 other states, being forced to subsidize the purchase of overpriced PNP electricity (57% or more above market rates, according to Holtec itself in its 7/5/22 bailout application to DOE), by rural electric co-ops in Indiana and Illinois?]

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Context refers to the characteristics of the geographic area, for example the proximity to unique or **sensitive resources or communities with environmental justice (EJ) concerns**. Depending on the scope of the action, the potential global, national, regional, and local contexts are also considered as well as the duration, including short-and long-term effects. **[Emphasis added]**

[Sensitive resources at/near PNP, which would be significantly impacted by reactor restart, include the Great Lakes: 21% of world's surface fresh water, 84% of North America's surface fresh water, and 95% of the USA's surface fresh water. The Great Lakes are the drinking water supply for more than 40 million people in 8 U.S. states, 2 Canadian provinces, and a large number of Indigenous Nations. Lake Michigan alone is drinking water supply for 16 million people in 4 U.S. states, and a large number of Indigenous Nations. These figures are for current generations alone, let alone future generations yet to be born. Any impacts on Lake Michigan, from "routine operations" or catastrophes at PNP, would blow with the wind, flow with the water, and contaminate the food supply, with negative impacts lasting a very long time, given the hazardous persistence of various radioactive isotopes released, measured as 10 to 20 half-lives.]

Another sensitive resource is the fisheries in Lake Michigan and the Great Lakes, as well as the rest of the aquatic ecology present there.

Another sensitive resource is the critically endangered sand dunes at/near the PNP itself, providing habitat for remarkable biological diversity.

Both the Great Lakes and their adjacent sand dunes, including forested sand dunes with wetlands, are very fragile, exacerbating PNP's large impacts.

Communities with EJ concerns includes the large number of Indigenous Nations mentioned just above, including the Pokagon Potawatomi (centered in Dowagiac, Michigan), and the Gun Lake Potawatomi (centered near Delton, Michigan), to name but two. Other communities with EJ concerns at/near PNP include the African American majority population of Covert Township, Michigan, which also has a high rate of low income individuals and households, and the African American majority population of Benton Harbor, Michigan, which also has a high rate of low income residents. Yet another category of communities with EJ concerns is the relatively large Latin American population of southwest Michigan, including seasonal workers, given the large concentration of agriculture in the region, as well as permanent residents.]

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The ESA effects determination for federally listed species are as follows:

- No effect: Federally listed species or ***critical habitat*** will not be affected, directly or indirectly.
- May affect but is not likely to adversely affect: All effects on federally listed species or critical habitat are beneficial, insignificant, or discountable.
- May affect and is likely to adversely affect: An adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action and the effect is not: discountable, insignificant, or beneficial. **[Emphasis added.]**

[Critical habitat, as mentioned just above, includes critically endangered, and fragile, Great Lakes shoreline sand dunes and beach, including forested wetlands, as well as the Great Lakes themselves.]

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Cumulative Effects—each resource area will describe the incremental effects of the

proposed actions when added to the environmental effects of other past, present, and reasonably foreseeable actions.

[2 SMR-300s being constructed and operated on the tiny 432-acre PNP site, alongside 80-year extended operations at the “zombie reactor,” represents a major cumulative impact.

The way NRC essentially ignores all past public comments provided at past proceedings, like the 2006 license extension SEIS comments for the 60-year license at PNP, is objectionable. It's like NRC was born yesterday, and expects us to be as willfully ignorant and blind as they are, in regards to such large and cumulative impacts at, near, and from PNP

Tremendous effort was put into our environmental coalition's 2006 draft SEIS public comments. Yet NRC ignored most to all of them. For that reason, they are still relevant. Just because NRC cites the 2006 SEIS repeatedly throughout this EA, does not mean NRC has adequately addressed those comments or concerns, or addressed them at all.

For this reason, we incorporate by reference, as if fully written herein, the entirety of our environmental coalition's comments on the draft SEIS from 2006. Those comments are posted online here, at the following two links:

May 18, 2006: [Group comments, submitted by a coalition of organizations including NIRS and numerous grassroots groups in Michigan and other U.S. states and Canadian provinces around the Great Lakes Basin, regarding NRC's draft Environmental Impact Statement on the Palisades 20 year license extension](#). This coalition represents well over 200,000 residents of Michigan alone, in opposition to the dangerous extension of operations and waste generation at Palisades from 2011 to 2031.

May 18, 2006: [Executive summary of coalition comments to NRC regarding its draft Environmental Impact Statement for the Palisades 20 year license extension.](#)]

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Cumulative Effects—each resource area will describe the incremental effects of the proposed actions when added to the environmental effects of other past, present, and reasonably foreseeable actions.

[In the context of Cumulative Effects, past, present, and future, both Holtec and NRC lied to us re: decommissioning in the past. Holtec's bait and switch trick/con game to get hold of Palisades in the first place, only to then announce its restart scheme, as well as SMR new builds scheme, has been enabled by NRC's own complicity and collusion, and now by DOE's, and even FEMA's, as well. The U.S. Congress is also complicit, as has been the White House. Governor Whitmer and the Michigan state legislature have also participated in this complicity and collusion, as have local units of government, such as Van Buren County, the City of South Haven, and the Township of Covert. NRC promised to go away and never come back in September, 2022, at a “final” decommissioning public comment meeting (held at Lake Michigan College's South Haven campus, after Holtec had already publicly announced its restart scheme), but instead has aided and abetted Holtec in the restart and new build schemes. NRC has come back more often than ever before in the past two to three years.

In 2012, at the first annual commemoration of the Fukushima Daiichi nuclear catastrophe, which began on March 11, 2011, the Japanese Parliament — known as the Diet — published the first independent investigation in that institution’s post-World War II history. It was a root cause determination for the nuclear catastrophe. The Japanese Parliament concluded that the root cause of the Fukushima Daiichi nuclear catastrophe was collusion, between the government safety regulatory agency, the company Tokyo Electric, and government officials. Such potentially catastrophic collusion exists in spades at Palisades. It is why the unprecedented, previously unthinkable, nuclear nightmare of a reactor restart scheme at the problem-plagued-from-the-start, now dangerously age-degraded PNP, was undertaken at all in the first place, and has proceeded this far. Holtec, which has never operated a reactor, has never built a reactor, and has an infamous record of incompetence, corruption, and even criminality, is putting the entire region in dire peril, sailing into uncharted waters of risk. Holtec is doing this with the complicity and collusion of the federal and state governments.

We incorporate by reference, as if fully rewritten herein, the following three relevant and related backgrounders, written in early 2024 by Kevin Kamps, radioactive waste specialist at Beyond Nuclear. They are posted online at the following links:

[“A People’s History of the Palisades Atomic Reactor”](#) (13 pages); [“Nuclear Nightmares: Palisades’ ‘Zombie’ Reactor Restart and SMR New Build Schemes”](#) (3 pages); [“Holtec: Criminality, Corruption, Incompetence, and Inexperience”](#) (2 pages).]

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The nearest population center is the township of Covert, which is approximately 2.5 mi (4 km) southeast of the Palisades site.

Van Buren State Park is located immediately to the north of the Palisades site, and Van Buren Trail State Park is located northeast of the site. The local terrain consists of wooded sand dunes along the lakeshore, and the area surrounding the plant is largely rural.

[Why is there no mention whatsoever here of PPCC, the 120-year old Palisades Park Country Club resort community, of more than 200 households, with a population of 2,000+ people in the peak of summertime? Doesn’t PPCC qualify as a population center?! It is located immediately south of Palisades Nuclear Plant (PNP). In fact, PNP displaced a number of former PPCC cottages. PPCC is the name origin of PNP — and the towering sand dunes in the area are the origin of PPCC’s name.]

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The dunes are relatively stable topographic features with occasional blowout caused by wind action. The majority of the land area is heavily wooded, with occasional wetlands. Besides the transmission line and corridor, the facilities at Palisades are only publicly visible from Lake Michigan and the beach areas to the north and south of the plant boundary.

[The dunes are critically endangered habitat for biodiversity — there are even forested wetlands amongst the sand dunes. These are rare and fragile ecosystems. PNP has had major impacts on them since 1967, when ground was broken.

Why is there no mention of the significance of blowouts, wind-driven displacement of large amounts of sand from the dunes. Blowouts could have major impacts on reactor, radioactive waste, and radioactive contamination, in terms of safety, health, and environmental protection.

PNP is “nestled in the dunes,” to borrow a phrase from a top spokesman at Cook nuclear plant 30 miles south of PNP. But PNP’s misdeeds, and their impacts, are not confined “just” to the dunes, which is bad enough; the impacts and potential consequences extend over a very large region actually. One can see Palisades Nuclear Plant (PNP) from the bluffs above the beach at South Haven, several miles away, a real eyesore. PNP can be seen from many miles out on Lake Michigan, again, a real eyesore. But also a cause for tremendous concern, if one understands what they are looking at, and the long, controversial (for good reason), and troubled history of PNP.]

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[Fig. 2-2 shows just how close the dry cask storage is to the Van Buren State Park campground. What is the radiation dose, from gamma and neutron “shine,” from the dry casks to people staying at the campground area?]

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[Fig. 2-3 — finally a mention of PPCC (Palisades Park Country Club! Why was it not mentioned above? The figure also shows how very close dry cask storage is to the Van Buren State Park campground. Routine operations at PNP are bad enough impacts on these very close by population centers. Catastrophic releases of hazardous radioactivity at PNP would be even worse for people at these immediately adjacent locations, in terms of human health and environmental impacts.]

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Holtec’s New and Significant Report (N&S Report)

[Even NRC’s attempt to clean up Holtec’s very oddly titled document leaves a lot to be desired. NRC’s version does not even mention the word “environment,” which even Holtec’s failure of a title did include. How are readers supposed to comprehend what this document is about, if NRC and Holtec slaughter its title so badly? More significantly, NRC’s adoption of this so-called document containing environmental information as the official Environmental Report required to comply with NEPA is a disservice to the public, and a violation of the letter and spirit of NEPA. Why does NRC go so far out of its way to accommodate Holtec’s carelessness and incompetence?]

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The replacement towers are crossflow mechanical draft cooling towers, designed for a 32 degrees Fahrenheit (°F) (17.8 degrees Celsius [°C]) range and a maximum sound level of 90 A-weighted decibels at 3 ft (0.9 m) from the equipment (HDI 2023-TN10712; Holtec 2023-

TN10538). The replacement towers included drift eliminators with a guaranteed drift rate of 0.001 percent of the circulating water flow rate (HDI 2024-TN10670: RAI-TE-1).

[Does the drift contain hazardous, toxic chemicals, such as biocides? Does it contain radioactivity, such as tritium? If yes to either question, why is that not spelled out clearly here?

Even 0.001% of the flow is still a lot of drift.

The commenter recalls very thick “fog” experienced at Van Buren State Park in the past. Given the shoreline in Lake Michigan (such as from road salts used to de-ice roads in the wintertime), what kind of CISCC (Chlorine-Induced Stress Corrosion Cracking) risk/damage does that mean for all things metallic and corrodable at PNP, including safety-significant systems, structures, and components (SSCs)? Our environmental coalition intervening against Palisades’ restart has retained Arnie Gundersen, chief engineer at Fairewinds, as an expert witness in that proceeding. Gundersen has warned about drift fog obscuring drivers’ visibility on nearby roadways, which includes Blue Star Highway and Interstate-196, just east, inland from PNP. Why has such hazards for drivers from the cooling tower drift at PNP not been addressed in this EA?]

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two new Diverse and Flexible Coping Strategies storage buildings

[These are post-Fukushima FLEX installations, so-called. Are they built to withstand impacts from extreme weather, or other natural disasters, or even terrorist attacks? If not, why not? Shouldn’t they be available under such circumstances? Isn’t that their supposed function, to help prevent reactor core meltdowns and radioactive waste fires/releases at PNP under extreme conditions? If these facilities fail, what impact would that mean for PNP and the surrounding region?]

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2.2 Alternatives For EAs, NRC regulations in 10 CFR 51.30(a)(1)(ii) (TN250) call for a brief discussion of alternatives as required by NEPA.

[This is why an EA does not suffice here. An EIS, even a PEIS, is demanded by the significance of the potential adverse impacts of this major federal action, which will set the precedent for numerous additional “zombie reactor restarts” to follow, as mentioned above. NRC and DOE’s Alternatives analysis in this EA falls very far short of what is needed. Instead of a “hard look” at alternatives, NRC and DOE have done hardly a look. This is a violation of the letter and spirit of NEPA.]

NEPA Section

102(2)(C) specifies consideration of a “reasonable range of alternatives” that are “technically and economically feasible, and meet the purpose and need of the proposal” (TN661).

[The Preferred Alternative — PNP restart — is most unreasonable. It is unprecedented, unneeded, insanely expensive for the public, and extremely risky for health, safety, security, and the environment. The No-Action Alternative, no restart, is most reasonable, compared to unreasonable Preferred Alternative.]

Re: the insane expense of the PNP restart for the public — more than \$3 billion already awarded by the federal government and State of Michigan, with more than \$5 billion more still requested by Holtec — we incorporate by reference as if fully rewritten herein a Breakdown of Bailouts at PNP. This includes another \$7.4 billion in nuclear loan guarantees requested by Holtec from the DOE for SMR design certification, construction, and operation. The entire amount could be gobbled up by Holtec just for the two proposed SMR-300s at Palisades, and certainly if one or more additional SMRs get built at Big Rock Point. The Breakdown of Bailouts at Palisades (and Big Rock Point) is posted online at the following link:

<https://beyondnuclear.org/breakdown-of-bailouts-at-holtecs-palisades/>

It must be noted that Donald J. Trump has stated that he will revoke and repeal the Inflation Reduction Act of 2022, as well as the Infrastructure Investment and Jobs Act of 2021. If this happens, the federal bailouts for PNP restart could well be stopped, and those already awarded could be clawed back. Despite Holtec's confident talk about the status of the bailouts, there is still a lot of doubt about what lays ahead for these federal bailouts. And if the federal bailouts don't happen, the State of Michigan bailouts may not happen, either. This is because a requirement for the State bailouts to flow, is for federal bailouts to flow first.]

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The no-action alternative would not meet the purpose and need of the proposed Federal actions to provide an option for baseload power and contribute to Michigan's clean energy goal.

[Palisades is not clean energy — far from it. The negative impacts on the environment and human health from the entire uranium fuel chain, including operation of PNP, are immense. But NRC and DOE are willfully blind to them, including in this EA. The State of Michigan, thus far anyway, is also willfully blind to them. Including nuclear power in the definition of "clean energy" is Orwellian.]

If it becomes necessary for utilities or other power suppliers to build other nuclear or non-nuclear power generation facilities to meet the demand, building those facilities would result in additional environmental impacts related to land disturbance and operation of construction equipment that would not be necessary if the already built Palisades is restarted.

[This is rich. Nuclear power has a million years — more so — of negative impact, in the form of highly radioactive irradiated nuclear fuel, and its hazards. As Don't Waste Michigan co-chair Michael Keegan has said, "Electricity is but the fleeting byproduct from atomic reactors. The actual product is forever deadly high-level radioactive waste, a curse on all future generations."]

Renewables, efficiency, and energy storage, on the contrary, have nowhere near that negative impact on the environment and health. Please see the expert witness declarations provided by our intervening environmental coalition's expert witness Dr. Jacobson, above, which points out the time- and cost-effectiveness of renewables, efficiency, and storage, in terms of reducing greenhouse gas emissions as climate mitigation. Dr. Jacobson testifies that nuclear power fails these time- and cost-effectiveness tests.

NRC's and DOE's words here are also rich in that Holtec plans 2 SMR new builds at Palisades, in just the next several years, doubling the nuclear megawatts on the tiny 432 acre site — talk about land disturbance, in a very fragile, biodiverse, critically endangered habitat. NRC and DOE should not be segmenting off the impacts from the 2 SMR-300s, from the impacts of the "zombie reactor" restart. Such segmentation is a violation of NEPA.]

PGS. 38-39/242 ON PDF COUNTER (pages 2-6 to 2-7)

2.2.2 Alternatives Considered and Not Carried Forward for Further Analysis

2.2.2.1 Replacing Palisades Reactor with New Onsite Reactor

[But Holtec IS building new reactors onsite — not to replace the Palisades "zombie reactor," but to "complement" or "supplement" it, in addition to it.]

This alternative would reuse land that had been previously disturbed by the existing reactor, but it would still result in additional noise, emissions, and other impacts from building new facilities.

[So on one hand NRC and DOE are saying this is to be avoided. On the other hand, they are expediting this very thing, in terms of 2 SMR-300 new builds. The federal agencies are talking out both sides of their mouth.]

However, building a new reactor would still require substantial costs beyond those needed to resume operation of an already built reactor. Additionally, building the new reactor would require substantial additional ground disturbance not needed to put the existing reactor back in operation. The unused lands on the Palisades site include sensitive dune, forest, shoreline, and wetland habitats. Using those lands to build a new reactor could result in loss or degradation of those habitats, as well as generate additional noise, emissions, and other impacts from building new facilities.

Neither of the alternatives described above were carried forward for detailed analysis because of the additional time and cost needed to build a new reactor and greater environmental impacts relative to resuming operation of the existing reactor.

[And yet, that is exactly what Holtec and NRC propose doing with 2 SMR-300s. DOE would be complicit if it awards Holtec the \$7.4 billion in nuclear loan guarantees for its SMRs the company has requested.]

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Whether using non-nuclear or nuclear energy generation, implementing any of the possible alternatives would require building new power generation facilities. As noted in the section above, it would not be feasible to wait to fully decommission the existing Palisades reactor before building the alternative power generation facilities, but at least some of the new facilities could be built using other land within the Palisades site. It is however unclear whether enough land is available on the Palisades site to accommodate land-extensive power generation methods such as wind or solar. Otherwise, the new power generation facilities could be built on other sites capable of supplying energy to Michigan's population, although those sites may not be served by the existing infrastructure already servicing the Palisades site such as transmission lines and roads. Using alternative power generation fuels or technologies to generate the additional energy would therefore result in substantial additional environmental impacts not needed to resume operation of the existing reactor, especially those related to additional land use, ground disturbance, and use of construction equipment.

None of the alternatives described above were carried forward for detailed analysis because of the additional time and cost needed to build the alternative facilities and greater environmental impacts relative to resuming operation of the existing reactor

[Please compare NRC and DOE's words here to the points made about the work and analyses provided by Dr. Arjun Makhijani of Institute for Energy and Environmental Research, Dr. Mark Z. Jacobson of Stanford University, Amory Lovins of Stanford and the Rocky Mountain Institute, above.]

Also, compare NRC and DOE's words here to former Michigan Governor (and former Energy Secretary) Jennifer Granholm's offshore wind power advocacy, above.

Renewables, efficiency, and storage do not have million year or longer — that is, forevermore — negative impacts on human health and the environment in the form of high-level radioactive waste, per above.]

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2.2.2.3 Installing System Design Alternatives for Use with the Current Palisades Reactor

System design alternatives would involve fitting the existing Palisades reactor with alternative system designs for processes such as heat dissipation, circulating water, and transmission systems. However, the systems already in place at the reactor meet regulatory requirements (e.g., U.S. Environmental Protection Agency (EPA) 316(b) [TN662]). As described in Chapter 3 of this EA, the NRC staff has determined that the environmental impacts from resuming operation of the existing facilities, with their existing systems, as called for in the proposed Federal action would be minimal. There is therefore no reason to carry any such alternatives forward for more detailed analysis.

[NRC and DOE have made a meaningless straw man argument here.]

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The resource areas listed below were identified during scoping to ***not have the potential for significant impacts*** or were covered by prior environmental review(s). Therefore, the NRC staff provides a brief discussion of these resource areas in Section 3 of this EA.

- Land Use and Visual Resources (Section 3.2)
- Nonradiological Human Health (Section 3.11.2)
- Waste Management (Section 3.12)
- Uranium Fuel Cycle (Section 3.13)
- Postulated Accidents (Section 3.14) [***Emphasis added***]

[PNP is an eyesore on what would otherwise be a very beautiful Lake Michigan shoreline.

Nature's and the land's purpose and need, just to be left alone in a healthy state, should trump Holtec's purported purpose and need, and even the State of MI's misguided so-called purpose and need.

What about the use of hydrazine and other chemical toxins at PNP, such as for "cleaning" SSCs, as biocides in the cooling water intake and discharge pathways, etc.? Hydrazine is ultra-toxic in very small quantities, and yet Holtec has requested permission in PNP's NPDES permit to discharge large amounts into Lake Michigan, which would be a major negative impact on the environment and human health.

Radioactive waste IS a significant impact on human health and the environment.

Uranium mining and milling on Indigenous Nations' lands is significant impact. Major impacts on Navajo/Diné and Pueblo communities has resulted from uranium mining; and on Ute Mountain Ute communities from uranium milling. But these are just a small number of examples of such impacts.

Such significant impacts are very possible at a restarted PNP, as well as at SMR new builds on the PNP site.]

3.1.1 The Affected Environment Related to the Proposed Federal Actions

As described in Section 1.3.4 of this EA, the environmental baseline or affected environment for Palisades and the proposed Federal actions under the NRC staff's evaluation are the environmental conditions at the point in time prior to the commencement of the project.

[This comes very close to ignoring cumulative impacts — what about PAST impacts on the same site FROM PALISADES?]

Transition to decommissioning resulted in Holtec reducing the number of workers employed at Palisades from approximately 550 employees in 2022 to 218 employees in 2023 (HDI 2024-TN10670: RAI-SE-1).

[The estimate for the number of jobs that would be "restored" if PNP restarts has been all over the place. This was on full display on March 27, 2024, at the PNP restart lovefest, starring Energy Secretary (and former Michigan Governor) Jennifer Granholm, and current Michigan Governor, Gretchen Whitmer. Granholm and Whitmer cited one set of inflated figures for the

number of jobs that would be “restored,” while Holtec cited another, significantly lower figure. Holtec’s own figures have varied dramatically, including a significant lowering of the number of jobs, as compared to the company’s own figures given recently before that.

Even NRC’s figure of 550 jobs above is dubious. PNP has claimed in the past to have provided up to 650 jobs. With such significant disparities, it is impossible for the public to determine the truth of the matter.]

Holtec also removed two structures in the plant protected area during decommissioning because the buildings exhibited poor structural integrity (Holtec 2023-TN10538).

[There is poor structural integrity across the entire site, including with safety-significant SSCs, the breakdown of which would cause catastrophic impacts on health and the environment, in the form of a reactor core meltdown, or radioactive waste fire.

Did Holtec’s dismantlement of those two structures cost tens to hundreds of millions of dollars to carry out? Because that is how much money Holtec has drained from the PNP Decommissioning Trust Fund, just in the year or two after taking ownership of PNP on June 28, 2022. The vast expenditures have never been explained to the public, given that so very little, to no, decommissioning work has taken place at PNP.]

Holtec continues to conduct routine herbicide application (HDI 2024-TN10670: RAI-GEN-1).

[What are the impacts on endangered or threatened indigenous plants?]

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Several of the activities involve ground disturbance that have the potential to affect environment resources and are listed in Table 3-1 and presented in Figure 3-1 below. The identified potential land disturbances are in previously disturbed areas (Figure 3-2 of this EA). Appendix I to this EA provides a set of historical photographs documenting the previous disturbance. The NRC staff considered these activities when determining the related environmental impacts.

[In other words, the site has long been previously trashed. Thus, it’s fine to trash it more in the future. This is an unacceptably bad attitude, which will result in the site not recovering from the major impacts inflicted on it for a very long time, if ever.]

Expand access road at south end of protected area. The project includes a road lane inside the new security barrier and a road lane outside the security barrier for a total of approximately 85 ft in width. The deepest point into the previously disturbed critical dune will be approximately **45 vertical ft** and is located on the east end of the roadway.

[45 feet deep is a huge negative impact, very destabilizing for these fragile, critically endangered sand dunes. Isn't the State of Michigan supposed to protect the dunes? Why is it not?]

Repair underground pipe, leaking condensate storage tank (T-2) piping, and leaking Utility Water Storage Tank (T-91) piping.

[Are these radioactive leaks? Are these toxic chemical leaks? Why is this not clearly explained?]

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cooling system chemical decontamination

*[Where does the mixed waste — toxic and radioactive waste mixed together — go to then? Why is this information not provided? If chelating agents are used to perform chemical decontamination of radioactivity, isn't this like putting roller skates on the radioactive substances, as Beyond Nuclear's emeritus board of president, Kay Drey, a 50-year long anti-nuclear organizer and educator, puts it. What impacts will such volatile mixed wastes at the so-called "low-level" radioactive waste dumps where they get buried? If it is at Waste Control Specialists in Andrews County, Texas, for example, this could endanger the Ogallala Aquifer over time. WCS is located adjacent to, or right on top of, the Ogallala. And as Dr. Marvin Resnikoff pointed out in his book *Living Without Landfills*, every single radioactive waste dump in this country, once opened, has leaked hazardous radioactivity into the surrounding environment. This is a major negative impact.]*

3.1.4 Cumulative Effects Evaluation

Cumulative effects are the effects on the environment resulting from the incremental effects of the Federal actions when added to the effects of other past, present, and reasonably foreseeable actions on a particular resource area.

[Treatment and consideration in this EA of the 2 SMR-300 new builds Holtec is targeting at the PNP site have been woefully inadequate. This is why an EIS/PEIS is needed, as we stated above.]

PGS. 45-46/242 ON PDF COUNTER (pages 3-5 to 3-6)

The NRC staff considered projects and actions within a 50 mi (80 km) radius of the Palisades site, except when specifically stated otherwise. Past actions include NRC past actions, e.g., licensing of operations, which are included in the cumulative effects analysis.

[The two gigantic reactors at Cook, 30 miles south of PNP, and the three reactors at PNP (the restarted "zombie" reactor, and the 2 SMR new builds), would represent a very major impact on Lake Michigan and the surrounding region, for decades to come. Such risks deserve a much harder look under NEPA than NRC and DOE have provided in this EA.]

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3.2 Land Use and Visual Resources

[At nighttime, PNP is all lit up by glaring bright lights. In daytime, an operating PNP emits a large amount of steam. These are major eyesores, all the way to South Haven, and a great distance out to sea for boaters. Otherwise, the Lake Michigan shoreline here would be quite beautiful, but for this “monster on the beach,” as the PPCC 100th anniversary yearbook (1905 to 2005) put it, in its chapter about PNP.]

Palisades is bordered by Van Buren State Park on the north and a privately owned residential and lakefront recreational community, **Palisades Park Country Club**, on the south (see Figure 2-3 of this EA). **{Emphasis added.}**

[This is one of the first explicit mentions of PPCC in this EA. Given the extremely high cancer incidence allegations coming from PPCC, NRC and DOE should have done a much more careful and methodologically robust analysis of negative health impacts on PNP's immediate neighbors to the south. Instead, NRC and DOE have engaged in a whitewash, and a greenwash, of these issues of the utmost importance.]

Palisades is also located within Michigan's coastal zone and includes sandy beaches on the shoreline of Lake Michigan that play a role in the **preservation and wildlife habitat quality of the critical dune area**. The movement of sand via littoral drift from surrounding shoreline areas is important for maintaining the structure of replenishing the beach. Site observations by the NRC ecologists in 2024 noted that the adjacent beaches lakeward of the developed areas on the Palisades site were armored against erosion and subsequently narrowed relative to the beaches fronting undeveloped lands on the site. The unarmored beaches at the Palisades site are relatively robust and wider in comparison.

[PNP has caused major damage to the wildlife habitat of these critical dunes, since ground was broken in 1971. “Armored” is a strange word choice. During the historic high Lake Michigan water levels of spring 2020, significant erosion took place, not far from PNP. This is a cautionary tale for what could happen at PNP itself in the future, meaning major impacts on the environment and health, if radioactive contamination is washed into the Lake or groundwater, if dry cask storage pads are destabilized, and if even reactor operations are threatened by this form of flooding, especially during extreme weather events connected to climate chaos. “Armored” is also an ironic word choice, given the many, very serious security breaches PNP has experienced over the years and decades. Certainly the dry cask storage is not “armored,” despite calls by our environmental coalition since 2002 for Hardened On-Site Storage at PNP. These calls have fallen on deaf ears at NRC and DOE, imperiling us all.]

Coastal Zone Management Act of 1972, as amended (CZMA) administered by Michigan's Coastal Management Program.

[The presence of PNP in these critically endangered, fragile sand dune ecosystems, is a major betrayal of any sane notion of coastal zone management, preservation, or protection. PNP should retire as long planned. The old “zombie” reactor should not be restarted. SMRs should not be built. Radioactive contamination should be completely cleaned up. Radioactive waste should be safely and securely managed. And then the sand dunes, forests, wetlands, beach, and Lake Michigan should be allowed to heal, for the purposes and needs of the indigenous

flora and fauna that have been endangered and threatened by PNP since 1971. This is the No-Action Alternative that appeals to us the most.]

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3.2.3 Environmental Impacts from the Resumption of Power Operations

[Except of course the risk of meltdown is unacceptably high already, and will just get worse with time and age-related degradation.]

This extreme meltdown risk belies NRC/DOE “NOT SIGNIFICANT” determinations. So too the worsening leakage, of radioactive contamination and toxic chemical contamination, that should be expected at this nuclear rust bucket, that was a nuclear lemon from the get-go. NOT SIGNIFICANT? Are NRC and DOE referring to residents of the area, their health, safety, security, and environment? WE are NOT SIGNIFICANT? Is THIS what NRC and DOE mean when they say “Finding of No Significant Impact”?

3.2.4 Cumulative Effects

Appendix G, Table G-1 identifies other past, present, and reasonably foreseeable actions that could result in cumulative effects. The addition of SMRs on the Palisades site would be consistent with the existing industrial land use and appearance of Palisades. SMR operation could generate additional vapor plumes if the proposed SMR technology requires building additional cooling towers.

As discussed in Sections 3.2.2 and 3.2.3 of this EA, the proposed Federal actions would have not have a noticeable effect on the industrial use and visual appearance beyond what has been previously experienced. SMRs, if constructed onsite, would be consistent with the existing industrial use and appearance of Palisades. Therefore, the NRC staff has determined that incremental land use and visual effects of the proposed Federal actions when added to the effects of other past, present, and reasonably foreseeable projects would not have significant cumulative effects.

[Meltdowns would not necessarily impact visual aesthetics, unless all the trees die, like they did in Chernobyl's Red Forest. An entire pine forest near Chernobyl Unit 4 turned red and died, from its exposure to massive levels of radioactive contamination. Of course, the Chernobyl Dead Zone is also an eerie eyesore, in terms of its absence of human habitation, as it is too radioactive for people to live there, over a vast region, to this day.

But the PNP “zombie” reactor + 2 SMR new builds = potential domino effect multiple meltdown risk, as happened at Fukushima Daiichi in Japan, in March 2011 — a meltdown would mean the site could no longer be used for industry, or anything else. It would be too hazardous to inhabit in any way, shape, or form, like in the Chernobyl and Fukushima Dead Zones, which, truth be told, should be much larger than they actually are. The risk of one or more meltdowns at PNP would be all the more likely, given that both extreme ends of the risk spectrum would share the same tiny, 432 acre site: breakdown phase risks at the “zombie” reactor, and break-in phase risks at the two SMR new builds. Chernobyl Unit 4 in Ukraine in 1986, and Three Mile Island Unit 2 in Pennsylvania in 1979, are examples of break-in phase reactor catastrophes. So too is the “We Almost Lost Detroit” Fermi 1 partial core meltdown of 1966, in Monroe County, Michigan, on the Lake Erie shore.

Holtec's 300 MW-e SMRs are not so "small." They would each be 4.5 times bigger than the 67 MW-e Fermi 1, and Big Rock Point, reactors. For its part, Big Rock Point released more than three million Curies of hazardous radioactivity during its 35 years of operations. This is a staggering amount, one of the very worst records of any American reactor. For more information, please see the following backgrounder and documents, incorporated by reference as if fully rewritten herein:

November 30, 2006: [Kevin Kamps \(NIRS/Don't Waste Michigan\) press statement in opposition to "Plutonium State Park" at Big Rock Nuclear Power Plant near Charlevoix, Michigan.](#)

November 30, 2006: [Statement by Kay Drey, NIRS board of directors secretary, opposing state park at Big Rock nuclear plant in Michigan.](#)

November 30, 2006: [Statement of Michael J. Keegan, Coalition for a Nuclear Free Great Lakes, in opposition to state park at Big Rock nuclear power plant.](#)

November 30, 2006: [Coalition statement \(two dozen grassroots groups\) opposed to "Plutonium State Park" at Big Rock Nuclear Power Plant in Michigan.](#)

November 30, 2006: [Coalition Urges Rejection of Big Rock Nuke Site Park: Numerous Michigan Natural Resource Treasures Without Nuclear Waste Would be Better Choices for Limited Trust Fund Dollars.](#) Press release.

November 30, 2006: [Say Yes to Michigan, Say No to the "Plutonium State Park"! Backgrounder on Big Rock Nuclear Power Plant.](#)

[Letter to Hayes Township Advisory Focus Group and Planning Commission, re: need for zoning at the former Big Rock Point nuclear plant to absolutely minimize human exposure to hazardous radioactivity, February 8, 2023.\]](#)

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Three flood events were recorded during this period, with the most recent one occurring near South Haven on April 17, 2013 causing damage over 32 million dollars (NOAA 2024-TN10769).

[NRC and DOE seem to have neglected mentioning the historic high Lake levels in spring 2020 — no "flood" needed, per se, the high Lake levels just did significant erosion damage to area beaches and bluffs, including close to PNP. In April 2002, the commentor here paced the distance from the Lake's edge, to the foot of the small bluff behind which one of PNP's dry cask storage pads is located. The distance was a mere 30 paces, about 100 feet. The oft repeated claim by PNP that that dry cask storage was 150 yards from the Lake likely misstated it in spring 2002. The high Lake level brought the Lake much closer than 150 yards to the vulnerable dry cask storage on the beach. An extreme weather event, fueled by climate chaos, scoring a direct hit on this Lakeside dry cask storage at PNP, could result in catastrophe.]

The monitoring program procedure and quality assurance documents are maintained by the applicant within Holtec Procedure EM-33 (HDI 2024-TN10670: RAI-MET-1).

[Was QA maintained during the prolonged shutdown — was any of the monitoring equipment itself dismantled or modified, like the cooling towers? After all, most to all requirements were simply terminated by NRC, at Entergy and/or Holtec's request, in the lead up to Entergy's closure for good of PNP on May 20, 2022, with official certifications delivered by Entergy to NRC on June 13, 2022. Are the long intervals between maintenance acceptable? After all, a third of EPA monitors nationwide were inoperable when Fukushima began, for various reasons having to do with neglected maintenance.]

At PNP itself, such neglect of maintenance has resulted in a significant increase in risk to safety, health, and environment. For example, on January 14, 2025, we finally got verification from an NRC staffer, during an NRC-Holtec meeting, that Holtec had waited two full years before implementing chemically preservative wet lay up on the steam generators at PNP. This has resulted in accelerated degradation of the steam generator tubes, a major safety risk. Holtec has proposed mere BAND-AID fixes, such as sleeving degraded tubes, and NRC appears poised, as ever, to rubberstamp this dangerous idea. Holtec has also proposed unplugging tubes in the steam generators that were plugged 35 years ago as a safety precaution against vibration and rubbing that could cause yet more tube degradation. Needless to say, the rupture of a tube at PNP during operations would result in a release of hazardous radioactivity to the environment. The more tubes that rupture, in a cascading failure, would mean larger and larger quantities of hazardous radioactivity escaping into the biosphere. And if enough tubes failed at once, a reactor core meltdown would ensue, with catastrophic releases of hazardous radioactivity into the environment. This would have major negative impacts on the environment, as well as health and safety.

NRC's own report, Calculation of Reactor Accident Consequences, or CRAC-II, from 1982, contains shocking figures for casualties and property damage if PNP melts down: 1,000 peak early deaths (acute radiation poisoning fatalities); 7,000 radiation injuries; 10,000 peak cancer deaths (latent cancer fatalities); and \$52 billion in property damage. The report is most commonly referred to as the CRAC-II report because that is the computer program used in the calculations, but the report is also known as the 1982 Sandia Siting Study — after Sandia National Lab in New Mexico, which NRC contracted to carry out the study — or as NUREG/CR-2239.

Adjusted for inflation alone, this property damage figure would now surmount \$168.63 billion, expressed in Year 2023 dollar value figures.

And as Associated Press investigative reporter Jeff Donn reported in his four-part series “Aging Nukes” after Fukushima, populations have soared around U.S. atomic reactors like Palisades, meaning casualty figures would be correspondingly higher today, given more people in harm's way.

We incorporate by reference, as if fully rewritten herein, the “Aging Nukes” series, posted online here:

<https://www.ap.org/media-center/press-releases/2012/aging-nukes-a-four-part-investigative-series-by-jeff-donn/>

The CRAC-II casualty and property damage figures were so alarming, that NRC — captured by the agency it is supposed to regulate — tried to suppress the report. But the findings were

outed by U.S. Representative Ed Markey (Democrat-Massachusetts), in a congressional hearing. Markey is now a U.S. Senator.

NRC similarly tried to prevent NAS from publishing a report about security risks at nuclear power plants, in the aftermath of the 9/11 attacks. The dispute between the two federal agencies generated major national media coverage. In the end, a redacted version of the report was published by NAS, but NRC's meddling led to a many months long delay in its publication.

NRC also engaged in trying to hide a major near-miss with a indoor wet storage pool irradiated nuclear fuel fire in October 2005. It buried mention of the incident in an inspection report. NRC Region III OPA spokeswoman Viktoria Mytling, at a public meeting in South Haven, Michigan in April 2006, attempted to defend and justify NRC's actions (or lack thereof) by calling the cask dangle close call with catastrophe an unreportable event.

Such cover ups by NRC are of course unacceptable, a reflection of the agency's dangerous collusion with the industry it is supposed to regulate.

For this reason, we incorporate by reference the following three documents about the 2005 cask dangle near-miss, as if fully rewritten herein:

March 18, 2006 Detroit Free Press front page, above the fold headline article, "NUCLEAR SAFETY LEFT HANGING AS CRANE DANGLED FUEL RODS: MICHIGAN INCIDENT GOT WARNING BUT NO FINE";

March 20, 2006: [High-Level Atomic Waste Mishap at Palisades Nuclear Reactor Risks Radioactive Inferno with Casualty Potential of Thousands of Deaths Downwind](#). NIRS and coalition press release;

April 4, 2006: [Summary Report on High-Level Atomic Waste Mishap at Palisades Nuclear Reactor Risks Radioactive Inferno with Casualty Potential of Thousands of Deaths Downwind, Based Upon U.S. Nuclear Regulatory Commission Freedom of Information Act \(FOIA\) Response Documents](#), prepared by NIRS for release at press conference at the State Capitol in Lansing, Michigan.]

Winds are predominant from northwest and southwest during 2022 through 2023 at 197 ft (60 m) height. High wind speeds are more frequent during winter months and very low wind speeds are observed during summer months. The average wind speed showed a decreasing trend at both 33 ft (10 m) and 197 ft (60 m) heights from 1983 through 2023. An average wind speed of 7.67 miles per hour (mph) (3.43 m/s) was noted at 10 m and 13.6 mph (6.1 m/s) at 60 m during the period of 1983 to 2023. The atmospheric conditions were 25 percent unstable (A-C), 59 percent neutral (D-E), and 16 percent stable (F-G) during 2023. Stability frequencies are noted to shift toward the unstable classes in recent years (HDI 2024-TN10670: RAI-MET-1).

[What is the wind power potential on-site, and off-site on the Lake? After all, Holtec is willing to risk the future of Lake Michigan. Why not build wind turbines there/nearby, instead? This would have much less impact on the environment and health than restarting PNP. What about aesthetic impacts of offshore wind power? It's preferable to the aesthetic impacts of Palisades itself, let alone the radioactive impacts, and potentially much larger radioactive impacts. As Dr. Arjun Makhijani put it at a book talk about Carbon-Free and Nuclear-Free: A Roadmap for U.S.

Energy Policy in Kalamazoo, Michigan in late October, 2008, we can either freeze in the dark without a job (live without electricity), bake the planet (climate chaos), kick the plutonium can down the road to our descendants (another risk of nuclear power — weapons proliferation), or, we can deal with the view (wind turbines, solar panels).

Dr. Makhijani's framing led to a letter to the editor published in the Muskegon Chronicle, incorporated by reference herein as if full rewritten herein:

<https://static1.1.sqspcdn.com/static/f/356082/10617450/1297055663983/Muskegon+Chronicle+Nov+17+2008.pdf?token=TPctULtDlzyNFiK9y9wVPsCLoR0%3D>

IEER "wrote the book" on the many downsides of nuclear power, and why it is not a climate mitigation strategy. We incorporate IEER's book on the subject by reference, as if fully rewritten herein:

<https://ieer.org/resource/books/insurmountable-risks-dangers-nuclear/>

NRC and DOE should use IEER's framing, as in this book, in its hard look in an EIS/PEIS, re: PNP's restart, as in a much more robust and comprehensive Alternatives analysis than was carried out in this woefully inadequate EA.]

The Palisades site experiences considerable cloud cover during most of the year, which can influence air dispersion of radioactive releases as cloud cover generally creates a more stable atmosphere with less atmospheric mixing. The vent release height for radioactive releases is 191 ft (58.1 m). The relative air dispersion (χ/Q) for routine releases were determined to be 1.8×10^{-6} at the site boundary, which is about 0.5 mi (0.8 km) from the release point. Short-term χ/Q was estimated as 1.55×10^{-4} for 0 to 2 hours and 4×10^{-5} for 0 to 8 hours at the exclusion area boundary of 2,641 ft (805 m) (Entergy 2016-TN10765: Chapter 2)

[Even with cloud cover, solar power would still work at PNP itself, and/or nearby, and/or elsewhere in the service area. This would be a preferred alternative to PNP restart. Dr. Al Compaan, a solar power entrepreneur and patent holder, as well as emeritus chair of the Physics Department at the University of Toledo, testified as much to the NRC ASLB as an expert opposing the 80-year license at Point Beach NPP in Wisconsin. Dr. Compaan explained the solar power technology is growing ever more efficient and effective. Direct sunlight is not needed to generate electricity. Even diffuse sunlight is sufficient, through a process called insolation. That intervention petition and request for hearing testimony is incorporated by reference, as if fully rewritten herein:

<http://static1.1.sqspcdn.com/static/f/356082/28418937/1616559485077/3+23+21+Declaration+Compaan+PBN+final+-+Declaration+Compaan+w+exhs+COMPLET.pdf?token=v%2BxPAAS%2FxVFSzfOauZpj5Xnhstc%3D>

If solar power is viable at Point Beach, it is certainly viable further south, at PNP, as well as elsewhere throughout the entire Great Lakes region and service area.

Point Beach is also located on the Lake Michigan shoreline. Point Beach Unit 2 and Palisades are essentially tied for worst neutron-embrittled reactor pressure vessels, a pathway to meltdown that risks catastrophic environmental, health, and safety impacts.

NRC admitted Palisades' and Point Beach Unit 2's worst in the U.S. RPV embrittlement in April 2013, after a heated public meeting attended by a very large number of concerned citizens and residents:

***March 19, 2013:** Kevin Kamps of Beyond Nuclear's [questions to NRC re: the agency Webinar](#) on RPV embrittlement/PTS risks at Palisades.* On [April 18, 2013](#), NRC released a [summary of the Palisades embrittlement webinar it had held on March 19th](#). This document has been referred to as: J. Geissner, Summary of the March 19, 2013, Public Meeting Webinar Regarding Palisades Nuclear Plant. It is available at ADAMS Accession No. ML13108A336. The slides from the NRC Public Webinar, Basis for NRC Requirements on Pressurized Thermal Shock, are available at ADAMS Accession No. ML13077A156.*

Point Beach and Cook nuclear power plants, in WI and MI respectively, on the Lake Michigan shorelines, have no cooling towers. All the thermal waste heat generated is dumped into Lake Michigan as thermal pollution. The PNP “zombie” reactor would contribute to this thermal wastewater pollution as well, despite having cooling towers. So too would two new SMR-300s at PNP, and one or more at Big Rock Point. These are major impacts on Lake Michigan’s aquatic ecology, from nuclear power.

Solar, as well as wind, efficiency, and storage, should be the preferred alternatives, rather than PNP restart, given their significantly smaller impacts. PNP should be retired as long planned, and kept closed for good, the No-Action alternative.]

There are no Prevention of Significant Deterioration Class I areas located within 100 mi (161 km) radius of the Palisades site.

[Not even Michigan City, IN? Gary, IN? Chicago, IL? Is that because they just over 100-miles away? Or not even? NRC needs to expand its radius of concern, and recognize the areas of significant concern that southern ring Lake Michigan, including at the PNP itself.]

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Major emission point sources in Van Buren County include a natural gas fired 1,176 MW power plant and a pharmaceutical laboratory that operates gas boiler and emergency diesel generators.

[Why is there no mention here that a large Natural Gas-Fired Power Plant is located immediately across the highway from PNP? What a LARGE impact on local communities, including Covert Twp., given both pollution sources. It’s an EJ violation, given the relatively large African American populations of Covert Twp. and Benton Harbor, as well as their high-level of low income individuals and households. There is also a large Latino population in the area, including migrant seasonal agricultural workers, as well as families which have settled in the area as

permanent residents. Many are also low income. Then of course the Indigenous Nations nearby, such as Pokagon and Gun Lake Bands of Potawatomi.]

Gases found in the Earth's atmosphere that trap heat and play a role in the Earth's climate are collectively termed GHG. Climate change is a subject of national and international interest because of how it changes the affected environment. Commission Order CLI-09-21 (NRC 2009 TN6406) provides the current direction to the NRC staff to include the consideration of the impacts of the emissions of CO₂ and other GHGs that drive climate change in its environmental reviews for major licensing actions. The GHG emissions estimates from a 1,000 MWe reactor and the scaling calculations for Palisades are presented in Appendix F. The NRC staff estimated the GHG emissions, using the assumptions discussed in Appendix F, of the proposed actions, 1,444,739 MT CO₂(eq)—this includes emissions from preparation activities and resumption of operations. The total life-cycle emissions (which also include decommissioning) were estimated to be about 1,474,000 MT CO₂(eq).

[That's a lot of GHG from Palisades restarting. Especially compared to just decommissioning it. And what about the GHG from Holtec's 2 SMRs? What about cumulative impacts? And perhaps most significantly of all, what about the climate impacts on PNP, both "zombie" reactor and SMR new builds. Extreme weather driven by climate chaos has the potential for catastrophic meltdowns at PNP, as well as radioactive waste fires. Dr. Mark Jacobson's expert witness testimony, above, clearly shows that renewables are much more cost- and time-effective at reducing GHG emissions than is nuclear power, such as the PNP restart and/or SMR new build schemes.]

3.3.2 Environmental Impacts from the Preparations for the Resumption of Power Operations

The NRC staff anticipate combustion and fugitive emissions from preparation activities would be NOT SIGNIFICANT.

[Again, when NRC and DOE say FONSI, do they mean they don't think the local area's/region's population is significant enough to care about, so that any negative impacts, no matter how major, thus, cannot be significant?]

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3.3.3 Environmental Impacts from the Resumption of Power Operations Cooling Towers

The Palisades site has two banks of 65 ft (20 m) high mechanical draft cooling towers on the southern side of the plant, which replaced the original cooling towers in 2012 and 2017 (section 2.1 of this EA).

[If the cooling towers were so new, why did Holtec do "minor modifications" on them, of all SSCs at PNP? Some others date back to 1967. Holtec has told NRC that these minor modifications on the brand new cooling tower arrays are all easible reversible, so can be reversed for restat purposes. Such make work to make money is waste, fraud, and abuse against the already severely underfunded Decommissioning Trust Fund. This robbery of ratepayer funds is illegal, but the cop — NRC — is looking the other way, mistaking which definition of "oversight" is its mandate.]

In the 2024 LR GEIS (NRC 2024-TN10161), the NRC staff noted that all observable effects on vegetation from the cooling tower plume ceased after the plant stopped adding sulfuric acid to the cooling water prior to the initial license renewal for Palisades, and noted that there were no anticipated additional impacts associated with cooling tower drift from the original towers.

[So sulfuric acid impacts only persisted from about 1971 to 2012 on the one bank of cooling towers, and only from about 1971 to 2017 on the other array? That is a LARGE impact lasting more than 40 years at the one array, and more than 45 years at the second array. These impacts were on rare, threatened, and endangered plants indigenous to critica forested sand dune habitats, a unique and biologically diverse ecosystem serving as home to a diversity of plant species.]

There are no planned modifications to the cooling towers as part of the resumption of power operations (Holtec 2023-TN10538).

[It's funny (well, not really) that NRC and DOE say that. A Holtec spokesman admitted they'd already done "minor modifications" as of 3/20/23. It was the only example of any decommissioning work whatsoever he made at the first NRC-Holtec "regulatory pathway to restart" meeting, for a decommissioning phase that began almost a year earlier. Again, per just above, why would they start decommissioning on the brand new cooling towers, when other SSCs across the Palisades site were decades older, some dating back to 1967? If Holtec planned to restart PNP, how is such modfication work on the cooling towers not waste, fraud, and abuse? Did Holtec pay itself to do the decommissioning work, and then pay itself to undo the decommissioning work? How is this not illegal? Where is NRC oversight and enforcement? Where is Michigan Public Service Commission oversight and enforcement?]

Since there would be no significant changes in the manner in which the cooling towers are operated (e.g., cooling-water chemistry), and Palisades has replaced the original cooling towers with new towers with drift eliminators, there would be no significant impact from the operations of the cooling towers

[IS NRC so sure? What WERE the "minor modifications" mentioned above? Why didn't NRC and DOE even mention them here? Our environmental coalition expert witness, Arnie Gundersen, chief engineer of Fairewinds, has testified in the connected ASLB proceedings re: Holtec's work and plans re: cooling system modifications. In Gundersen's expert opinion, and judgment, there WILL be significant changes to the cooling system, and they are flawed. Instead of doubling the size of the CCW (Component Cooling Water) heat exchangers, to deal with Lake Michigan's water temperatures increasing with global warming and climate change, he testiified that additional cooling tower arrays would need to be installed.

Gundersen's relevant testimony is cut and pasted in below. Note that Gundersen's testimony is relevant to other sections of the EA in addition to this one, which we will note as we go along. It comes from the environmental coalition's petition and request, dated October 7, 2024, the entirety of which is incorporated by reference, as if fully rewritten herein:

<https://beyondnuclear.org/wp-content/uploads/2024/10/10-7-24-Palisades-Petn-Intervene-PalisadesInterventionPetition-2.pdf>

See Exhibit A: Arnold Gundersen Declaration and CV, beginning on Page 77 of 303 on the PDF counter in the above linked petition and request.

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21. Even with these potential new state and federal subsidies totaling billions of dollars, the Holtec Palisades nuclear reactor is still not competitive financially with any renewable or sustainable electric generation facility—including solar, wind, wave, water, geothermal, and other new technologies under development. After Holtec’s proposed billions in repairs, the aged and decrepit facility—almost 60 years old—will require State and Federal subsidies for any electricity it may belatedly produce.

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25. Since acquiring Palisades, Entergy closed six out of its ten reactors because they were unprofitable and needed extensive upgrades and repairs. Pilgrim, Vermont Yankee, Indian Point 2&3, and Fitzpatrick (as well as Palisades) were all abandoned by Entergy because the electricity they generated was too costly compared to renewable sources produced by wind and solar. No firms have expressed interest in restarting any other former Entergy reactors.

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55.1. As discussed later in the Declaration, environmental conditions due to climate change have changed dramatically since Palisades was first licensed almost 60 years ago. A new design basis reflecting damaging climate change must be incorporated into any licensing approval for resurrecting Holtec Palisades.

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EXPERT OPINION: Conclusion #7 — Climate Change: The extreme burden is deepening worldwide.

[This section is entirely relevant to the question of climate change at Palisades. It begins with Point/Paragraph #73, and continues to Point/Paragraph #88 on Page 114 of 303 on the PDF counter.]

73. The design of the Palisades reactor began sixty years ago, during the mid-1960s. As part of the Palisades design process under its first owner, Consumer Power, the federal government required the utilities to evaluate the historical weather conditions that Palisades might reasonably be expected to experience and design the facility so it could withstand various climate-related events. These climate conditions then become the design basis for the atomic reactor facility. Engineers typically look back in history for 100 years for the worst weather conditions and then design the facility accordingly. Items such as storm intensity, water temperature in Lake Michigan, snow accumulation, maximum rainfall, and maximum wind speed are only a few of the factors that engineers considered during the original design of the Palisades nuclear power plant.

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74. Holtec itself has acknowledged that the changing climate is adversely affecting the Palisades reactor's original design and, therefore, requires significant modifications to the nuclear power facility. As just one example in an August 2024 Holtec Press Release entitled “Palisades Cooling System Upgraded to Counter the Continuing Threat of Global Warming,”¹² Holtec said,

“... the temperature of Lake Michigan, which supplies cooling water to Holtec Palisades nuclear plant ..has been ticking up like the rest of the world’s water reservoirs and is expected to continue rising in the coming decades during its projected service life ... To meet the projected rising lake water temperature, the new unit needed to be more than twice as large in heat transfer surface area as the existing unit....

“We are pleased to report this technical achievement to the industry to make other plant developers aware of what is possible to combat the adverse effect of global warming on nuclear and other power plants,” said Joy Russell, Holtec’s Chief Communications Officer.” [Emphasis Added]

75. Holtec’s new heat condenser replacement, often referred to as a heat exchanger in the energy industry, is a significant engineering and construction project on its own. As previously reviewed, the environmental impact of a change of this magnitude would be addressed during the conversion of the Construction Permit into an Operating License. If the NRC required Holtec to apply for an Operating License permit, as is necessary for the Palisades nuclear facility under a 10 CFR Part 50 License, it would be necessary for Holtec to file an Environmental Impact Statement evaluating the effects of climate change since the 1960s when the engineering design for Palisades was finalized.

76. Yet, Holtec acknowledges that it is a well-established fact that the climate in Michigan is changing and that the Palisades reactor can no longer operate without significant modifications. Unfortunately, although climate-induced events are apparent, the NRC is not following its federal regulations to determine the updated

{Citation for footnote #12, referred to above: 12 Holtec Document: HH #39.14 | August 15, 2024. <https://holtecinternational.com/wp-content/uploads/2024/08/39.14-1.pdf>}

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climate change evaluation requirements for this old decommissioned reactor facility. According to an April 2024 Government Accountability Office Report (GAO Report)¹³,

“Climate change is likely to exacerbate natural hazards—such as floods and drought. The risks to nuclear power plants from such hazards include damage to systems and equipment that ensure safe operation.

The Nuclear Regulatory Commission's oversight process includes addressing safety risks at these plants. However, NRC doesn't fully consider potential increases in risk from climate change. For example, NRC mostly uses historical data to identify and assess safety risks, rather than data from future climate projections.

We recommended that NRC fully address climate risks to nuclear power plants.”

77. According to the Government Accountability Office (GAO), the NRC is responsible for addressing the impacts of worldwide climate change at any federal nuclear power plant license. At Holtec Palisades, these responsibilities include creating new and detailed analyses of any environmental and safety issues that may be caused by climate change. For example, higher lake temperatures and cooling tower blowdown discharges at Holtec Palisades adversely affect the aquatic communities crucial to Lake Michigan.

78. Significant climate-related issues affect the safety systems at Holtec Palisades and must be addressed before the facility receives a new operating license. However, Holtec Palisades Corp continues to ignore them. For example, ultimate heat sink temperatures, wind forces, snow loads, and rain accumulation are some climate-related changes that could adversely affect the safe operation of Holtec Palisades. They have yet to be addressed by either Holtec or the NRC.

79. Holtec Palisades states that its new, state-of-the-art condenser (procured at great expense from its wholly-owned subsidiary) will have twice the heat transfer surface

{Citation for footnote #13, referenced above: 13 NUCLEAR POWER PLANTS: NRC Should Take Actions to Fully Consider the Potential Effects of Climate Change: Report to Congressional Requesters, April 2024, GAO-24-10632, United States Government Accountability Office. <https://www.gao.gov/assets/gao-24-106326.pdf>}

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as the old condenser [heat exchanger] it is replacing. This new modified condenser seems to be a solution in search of a problem. Let me explain.

80. Beginning three years after its initial construction by Consumers Power, Palisades was cooled by two large banks of mechanical draft cooling towers. Heated water from the condenser is sent to the cooling towers. The cooling towers transfer heat from the heated water to cooler air by evaporating the water into the air, making the air warmer, and reducing the water temperature. Now, at a lower temperature, this water is returned to the plant, where it is heated yet again, and the cycle is repeated throughout plant operation.

81. Climate change is increasing the atmospheric temperature, especially in the summer. As the summer air becomes hotter, cooling tower evaporation is reduced, and the water leaving the cooling tower and returning to the plant is cooled less than when the plant was designed in 1965. As a result, the warmer water returning from the cooling towers is not as cool as needed for optimal plant performance, so back pressure on the turbine increases, and electric power output is reduced.

82. While it is gratifying that Holtec Palisades acknowledges that global climate change is adversely affecting the 60-year-old design of its Palisades reactor, the remainder of their claim is dubious at best.

83. Holtec Palisades states that, because of increasing temperatures of water from Lake Michigan caused by global climate change, the old condenser at Palisades was inadequate for removing heat from the nuclear chain reaction. Based on this assertion of inadequacy, Holtec Palisades replaced the old condenser with an entirely new, unproven product designed and constructed by a Holtec International subsidiary. Holtec Palisades now states that this new condenser will have twice the heat transfer surface to remove excessive heat necessitated by the warming of Lake Michigan.

84. The basis for the claim by Holtec Palisades that a new condenser (provided by a subsidiary of Holtec International) was needed is undoubtedly questionable. Simply put, the water from Lake Michigan does not cool Holtec Palisades; instead, it is

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cooled by water circulating through two banks of cooling towers. Water from the cooling towers cools the condenser, NOT water from Lake Michigan. The cooling tower water temperature depends on the wet-bulb evaporative temperature of the atmosphere¹⁴, not on the water temperature in Lake Michigan. The standard solution if heat dissipation is inadequate is to add additional cooling towers, not to replace the condenser.

85. For three years after Palisades originally started, it was cooled by lake water. However, cooling towers replaced direct lake withdrawals because of damage to the lake's aquatic environment. Perhaps Holtec Palisades plans to withdraw and discharge water directly into Lake Michigan at some later date and is using public funds to accommodate that future plan. However, Holtec Palisades' assertion that the increasing lake temperature is the cause for installing a new condenser is false because atmospheric heat transfer from the cooling towers is what cools the condenser.

86. Building a larger condenser without other significant plant improvements fails to address the underlying climate change issue. With the current increases in summer temperatures, the cooling tower performance is simply inadequate on hot summer days. Building more cooling towers and increasing their water flow would be the appropriate climate change solution to improve plant performance during summer.

87. Instead of adding cooling towers and increasing the water flow at Palisades, Holtec's proposal to modify the plant condenser will have minimal effect on plant output without other major costly modifications. However, it will create six new technical

{Citation for footnote #14, referenced above: ¹⁴ <https://www.britannica.com/science/wet-bulb-temperature> Wet-bulb temperature (WBT) is the lowest temperature to which a person or an object can be cooled solely by the evaporation of water, given a constant barometric pressure. It

is so named because its approximate value is obtained from a wet-bulb thermometer. Whereas a normal, dry-bulb thermometer measures the temperature of ambient air, a wet-bulb thermometer measures the temperature of a surface from which water has evaporated into a stream of ambient air. The bulb of a wet-bulb thermometer is covered in cloth, usually muslin, that has been soaked in water at ambient temperature and then subjected to a source of moving air.}

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and additional ecological and environmental obstacles that must be addressed well before a restart is approved.

87.1. Evaporative losses from Palisades, as evidenced by more steam and smoke, will be increased, creating more ground fog for extended periods. How will this impact the surrounding community by creating more extensive fog? Are there highways or traffic patterns that may be affected significantly?

87.2. Increased Drift particles containing biocides and other chemicals will fall into the environment within a few miles of the plant. How will this impact farms and farm products, schools and children attending, and any nearby highways, agriculture, state or county park systems, recreational activities, and tourism, to name a few?

87.3. Increased cooling tower blowdown containing biocides and other chemicals will also be released directly into Lake Michigan. How will that impact the overall aquatic health of the Lake, including and not limited to the Lake's fisheries, marine species, commerce, tourism, recreation, etc.? Four miles north, South Haven draws its drinking supply from Lake Michigan. If so, how must it be treated differently to protect the lake's fragile ecological systems and human consumption?

87.4. With the increased requirements for more cooling water, more water will be drawn from the lake, with the death of accompanying fish larvae and mature fish.

87.5. Most likely, the existing pumps used to withdraw water from the lake to supply water to the cooling towers are inadequate for the additional heavy use of such old equipment. Therefore, the older outdated pumps would require replacement with larger pumps and associated piping well before reactor restart. Such piping expansion and the implementation of new pumps would require significant redesign and implementation of the lake draw-down area and redesign to protect fish and other aquatic species.

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87.6. Additionally, circulating water flow through the condenser and to the cooling towers would dramatically increase, requiring even larger pumps.

88. It is incredibly disconcerting that such environmentally consequential and ecologically sensitive areas would be burdened without environmental and ecological studies to minimize harm. Furthermore, it is disturbing that Holtec applauds this solution to the occasional summer

reduction in electric output as the solution to a tremendous increase in profit to a wholly owned subsidiary. The State of Michigan, county, and surrounding city areas should have their environment protected rather than burdening the local area to make more corporate profits. With these proposed changes, Holtec will increase the condenser surface area two-fold without modifying the cooling towers or ancillary systems.

On Page 133 of 303 on PDF counter, section 131. Climate Change begins, and continues for a number of pages:

131. Climate Change

131.1. It is important to note that when the Palisades atomic reactor was designed almost 60 years ago, global climate conditions were entirely different from today's conditions. In prior correspondence, Holtec Palisades has acknowledged in writing the adverse impact of global climate change upon the original climate parameters the plant was designed to withstand. Holtec is already changing the plant design to accommodate just one of those impacts: the increasing water temperature in Lake Michigan.

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131.2. However, global climate change has many other ramifications for the design of the Holtec Palisades reactor. The design basis of the Palisades facility is dramatically different in 2024 than in the mid-1960s. These climate change impacts on the Palisades licensing basis include and are not limited to lake temperature, air temperature, wet bulb temperature, rainfall/flooding, wind velocity, frequency and intensity of storms, snow loads, ultimate heat sink parameters, and many others.

131.3. Definition of design basis [30]: "The regulatory body establishes the nuclear safety principles and issues regulations on design; it needs [to be able] to evaluate the safety of the proposed design by reviewing and assessing the safety documentation (e.g., design basis, the safety analysis reports) and verifying the compliance of the design with regulatory requirements. The design basis is the range of conditions and events explicitly taken into account [considered] in the design of the nuclear installation, according to established criteria, such that the nuclear installation, through the planned operation of safety systems, can operate under these conditions and events without exceeding authorized limits. [Emphasis Added]"

131.4. Without reviewing any design basis or calculational evaluations made for Palisades, Holtec Palisades has already arbitrarily chosen to uniquely modify only one aspect of the facility's design to accommodate Lake Michigan's considerably changing climate in 2024. Therefore, according to 10 CFR 50.59 and with regulatory and public oversight, Holtec must be compelled to revisit all of the design basis assumptions relied upon during the mid-1960s. Holtec Palisades then must determine if any other climate-related factors can also reasonably be expected to have adversely affected the safety of Palisades in the future. [Emphasis in original]

131.4.1. While the condenser heat exchanger is not a safety-related system or component, Holtec's admission of climate-induced changes, including and not limited to increased water temperature of the water drawn from Lake

{Citation for footnote #30, referenced above: 30 <https://www.sciencedirect.com/topics/engineering/design-basis-accident> Definition of Design Basis

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Michigan, has significance for compiling the Holtec Palisades Safety Analysis Report (SAR) assessments, procedures, and calculations.

131.4.2. Climate change assumptions impact dozens of safety-related systems, structures, and components. For instance, building wind loads, building snow loads, ultimate heat sink temperature and atmospheric dew point, peak rainfall, and flooding need new consideration for emergency cooling systems and the safety-related structures and components associated with them.

131.4.3. All these assumptions about climate impacts trickle into dozens of systems and thousands of calculations, which Holtec must revisit. As one recent example of the effect of climate change, the Duane Arnold reactor recently experienced a climate change-induced derecho wind.³¹ The derecho wind was so severe that it exceeded the facility's design basis, causing Duane Arnold to retire early. The derecho winds caused the secondary containment to fail, clogged the ultimate heat sink intake, and damaged a safety-related building where emergency response equipment was stored. At Palisades, Holtec will need to consider hundreds of similar scenarios.

131.5. After a thorough evaluation, Holtec Palisades will likely find that Global Climate Change creates unanticipated scenarios outside the reference bounds of the design basis, increases the frequency of occurrence, and increases the likelihood of occurrence. For those reasons, Holtec Palisades violates subsections (2)(i), (2)(ii), (2)(iii), (2)(iv), (2)(v), (2)(vi), (2)(vii), and (2)(viii) of 10 CFR 50.59

{Citation for footnote number 31, referenced above: 31 <https://www.powermag.com/derecho-damage-results-in-early-retirement-of-duane-arnold-nuclear-power-plant/>}

****End of cut and paste of Gundersen testimony.****

Please note that on Page 140 of 303 on PDF counter begins the section entitled *Arnold Gundersen, Curriculum Vitae, Chief Engineer, Fairewinds Associates, Inc., October 2024* and continues for 23 pages.]

Emissions from Normal Operations

[There is nothing normal about operating a nuclear reactor. But yes, meltdowns are even worse. We incorporate by reference as if fully rewritten herein a pamphlet penned by Beyond Nuclear board of directors president emerita Kay Drey of St. Louis, Missouri. It is about “routine releases” of hazardous radioactivity from the entire uranium fuel chain, including at operating reactors like a restarted PNP. It is relevant to other sections of the EA, including ones about radioactive wastewater discharges to Lake Michigan, as well as to the air, which can and do then fallout, directly onto the Lake, or onto land, then washing into the Lake, or percolating down through the soil to contaminate groundwater. The pamphlet is posted online here:

[Routine Radioactive Releases from U.S. Nuclear Power Plants.](#) *An update to our comprehensive list and map of all operating U.S. reactors and where they release radioactivity into the air and water. Every nuclear power reactor dumps radioactive water, scatters radioactive particles, and disperses radioactive gases as part of its **routine**, everyday operation. **It doesn't take an accident.** Federal regulations permit these radioactive releases. Any exposure to radiation increases the risk of damage to tissues, cells, DNA, and other vital molecules, potentially causing genetic mutations, cancers, leukemias, birth defects, and reproductive, cardiovascular, endocrine, and immune system disorders.*

The pamphlet lists all reactors operating at the October 2015 press time. For an up to date track of reactors as they close, please visit our [Reactors Are Closing](#) page.]

P. 52-53 ON PDF COUNTER (pages 3-12 to 3-13)

The Palisades site will also operate two emergency diesel fired generators (21.8 MMBtu/hr) with a stack height of 50 ft (15.2 m) above the ground. Palisades will perform routine testing of another diesel fired emergency generator (17.5 MMBtu/hr), 800 break horsepower (bhp) emergency diesel engine for auxiliary feedwater system, two 175 bhp emergency fire pumps, and two 10 bhp emergency air compressors. Based on the draft permit requirements, the renewal permit, if issued, will require that the applicant shall not exceed the sulfur content of 1.5 percent in fuel oil feed. The two boilers will have a stack height of 100 ft (30.5 m) above the ground with **no pollutant control** equipment. **[Emphasis added]**

*[So much for “carbon-free” nuclear power — it’s another lie. **Why “no pollutant control,” in the year 2025?** We thought Holtec cared about climate change? On the contrary, they’ve long had a fossil fuel division.]*

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No emission units at Palisades are currently subject to the Prevention of Significant Deterioration regulations of 40 CFR 52.21 (TN4498), because the process equipment was installed prior to June 19, 1978 (MEGLE 2022-TN10667).

[Yet another exemption from modern/present day environmental protection regulations, because PNP is so old — designed in mid-1960s, constructed from 1967-1971, operated from

1971-2022. So much for caring about climate, air quality, etc. PNP should no longer be allowed to be grandfathered in, exempted from current environmental protection regulations. When Entergy closed PNP for good, and certified it with NRC, that meant no more authorization to operate. If Holtec wants to restart PNP, NRC should require it meet all current safety regulations; likewise, PNP should have to meet all current environmental and health protection regulations.]

The annual emissions reported during 2018, 2022, and 2023 are provided in Table 3-3 below. The NRC staff notes that Palisades shut down in May 2022, therefore the emissions from 2022 are representative of air emissions during partial operation and decommissioning, while 2023 is representative of air emissions during decommissioning.

[Why is there no data from 2019, 2020, and 2021? Did they turn the monitors off those years? Were those years especially bad, so they decided to not report them here?]

The NO_x emissions from fossil fuel combustion are relatively higher than other pollutants, but still much below than the threshold of 100 TPY. Additional contribution to ozone formation from NO_x and VOC emissions **should be insignificant. [Emphasis added]**

[Should be? But may be worse than that? But NRC and DOE don't care enough to look into that possibility? Of course, locals don't matter, so it's all insignificant — is that the agencies' logic? This is yet another reason why an EA is insufficient — an EIS/PEIS is needed. NEPA requires a "hard look," the courts have ruled. And the Judicial Branch, under the Constitution, is co-equal with the Executive and Legislative Branches, we should remember.]

The Palisades site has surrounding counties which are in maintenance status for lead and sulfur dioxide.

[Lead poisoning via drinking water in Benton Harbor, MI is not unlike lead poisoning via drinking water in Flint, MI. NRC and DOE should be more concerned about cumulative impacts, from multiple lead exposure pathways (drinking water, air, soil contamination, etc., especially in environmental justice (EJ) communities near PNP, like Covert Twp., Benton Harbor, etc.). This should be addressed in an EIS/PEIS.]

Emissions of hazardous compound are also negligible (HDI 2024-TN10670: RAI-MET-6).

[Certainly that statement is false re: radioactivity emitted from PNP, as well as toxic chemicals. As Benton Harbor resident Barbara Pellegrini, an outspoken critic of PNP, has stated to NRC in the past, the discharge of radioactive contaminants such as tritium into Lake Michigan from PNP does not dilute to safe levels in the Lake. It is concentrating artificial tritium in the Lake, more and more over time. Tritium has a 12.3 year half-life, so persists as a hazard for 123 to 246 years. Artificial tritium from PNP, and other atomic reactors on Lake Michigan, and the Great Lakes, is additive to the natural tritium, originated from cosmic radiation interacting with the Earth's atmosphere. But surface waters like Lake Michigan and the Great Lakes have a natural concentration of tritium of only 3 to 24 pico-Curies per liter. Joe Mangano of the Radiation and Public Health Project cited an EPA data point from a measuring station in South Haven, several miles north of PNP, that measured 2,500 pCi/L in open Lake Michigan surface water. While below the very lax and permissive (that is, not adequately protective, far from it) EPA Safe Drinking Water Act limit of 20,000 pCi/L, it is still a shocking measurement. It means that a

tritium wastewater plume, likely originating from PNP, diluted across several miles of open Lake Michigan surface water, but the plume still measured 2,500 pCi/L, when measured at South Haven. How concentrated was the plume immediately upon entering the Lake at PNP? This event is but one of countless tritium discharges from PNP into the air and water since 1971. While this discussion of radioactive hazards is relevant to those particular sections of this EA, it is nonetheless instructive here. The Earth's atmosphere, and its soil for that matter, is thin. Humankind needs to stop discharging hazardous pollutant, radioactive and non-radioactive (toxic chemical) into the environment. Or else the environment, and human health, will continue to suffer major impacts, including from cumulative and even synergistic effects. By the way, <compound> above should be <compounds>.]

Table 3-3

[Why is CO2 not included? How large are the CO2 emissions?]

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3.4 Surface Water Resources

[As mentioned above, the Great Lakes represent 21% of the entire world's surface fresh water, 84% of North America's surface fresh water, and 95% of the USA's surface fresh water. 40+ million people in 8 US states, 2 Canadian provinces, and a large number of Indigneous Nations, depend on the Great Lakes for drining water, and so much more. They need to be protected as the vital planetary lifeline that they are. Water is life. NRC and DOE's EA is far from protective; an EIS/PEIS is necessary. Once the risks and impacts get the "hard look" required under NEPA, NRC and DOE should have no other choice than to go with the No-Action Alternative, that is, rejection of the PNP restart, as too risky, too impactful, for the environment, health, safety, etc.]]

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reduction in potable and sanitary water use because the workforce decreased from approximately 550 in 2022 to 218 in 2023 and 449 currently (HDI 2024-TN10670: RAI-SE-1, RAI-SE-2).

[Again, as we previously commented above, the figure for "restored" jobs, if PNP restarts, has been wildly all over the place, depending on the source, or even depending on when the same source spoke. We have seen claims of up to 650 jobs at PNP claimed in the past, but here they admit it was only 550 at closure. NRC and DOE should provide a table showing the number of jobs at PNP, by year, or even more detailed than that, by month, going all the way back to the beginning, in 1967, when ground was first broken, all the way to the present day. This is important transparency for many reason, including water usage, per just above, but also so the cost per job, in terms of public subsidies, can be determined. Depending on the number of jobs to be "restored" at PNP, as well as the amount of bailouts received by Holtec for the restart scheme, a cost per "restored" job can be calculated. At one point in the past nearly three years, a figure of \$12 million per "restored" job was calculated. Another time, after more subsidies were awarded to Holtec, a cost per "restored" job calculation resulted in \$29 million. This figure was a thousand times more expensive, than the average cost of creating a new job with state

subsidies in Michigan, on average, in 2023. The reason this is important is that NEPA, and NRC's implementing regulations, require a socioeconomics analysis. DOE was also required to do a community benefits report regarding the awarding of massive bailouts to Holtec for the restart scheme. Clearly, the EA's analyses are far from adequate. An EIS/PEIS is needed. If the same amount of public subsidies could create a thousand jobs, instead of "restoring" just one job at PNP, then clearly, in terms of job creation/"restoration," PNP's restart is a non-starter. This is relevant because Governor Whitmer, Holtec, and other PNP restart proponents have, at various times, touted the jobs to be "restored" as justification for the PNP restart scheme. But clearly, the opportunity costs are off the charts.]

Currently, Palisades withdraws approximately 6,000 gallons per minute (gpm) of water from Lake Michigan for spent fuel pool cooling (HDI 2024-TN10669: RCI-SW-5, 6, and 7). This water is returned to Lake Michigan. Palisades uses approximately 2.8 gpm (16,000 cubic ft [ft³] per month) (10.6 lpm and 450 m³) of potable water from South Haven Municipal Water Authority (HDI 2024-TN10669: RCI-SW-5, 6, and 7).

[Even in its decommissioning/non-operational/closed for good phase status, water usage is still quite high at PNP. But if restarted, water usage will increase astronomically. This would be yet another major impact on Lake Michigan, and should not be permitted.]

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The intake structure is inspected annually for integrity and other environmental conditions including zebra mussel buildup (HDI 2024-TN10669: RCI-SW-3). No dredging is currently performed at the intake structure.

[What biocides does PNP use? In what quantities? To kill zebra mussels, quagga mussels, and what else? NRC and DOE should be fully transparent about biocide use at PNP. The EA's coverage is inadequate. Full transparency should be provided in an EIS/PEIS.]

Palisades also has a Michigan EGLE-issued Storm Water Management Industrial Site Certification, I-18257, that expired on July 1, 2016 (HDI 2024-TN10670: RAI-GEN-3). Holtec has requested Michigan EGLE to issue a Clean Water Act (CWA) Section 401 water quality certification or a waiver from the water quality certification requirement. Michigan EGLE is currently reviewing Holtec's request

[Many members of our environmental coalition opposed to Holtec's restart of PNP, as well as opposed to Holtec's SMR new builds at PNP and Big Rock Point NPP site, testified at MI EGLE public comment hearings in October 2024. We testified against renewal or extension of PNP's NPDES permit, which would allow the dumping of hazardous substances into Lake Michigan, for many years or even decades to come, to enable PNP's restarted operations, and also Holtec's SMR new builds' operation. Similarly, we oppose any granting by EGLE of certifications or waivers, such as re: CWA Section 401 water quality requirements. PNP should be retired, for good, as long planned, in order to allow Lake Michigan's aquatic ecosystem to heal from more than a half-century of abuse by PNP. Water is life. Lake Michigan is not a radioactive and toxic chemical and thermal wastewater industrial sewer. Drinking water, and habitat for indigenous biological diversity, is a more important value than treating the Lake as an industrial sewer for PNP's ongoing abuse.]

On October 30, 2023, a noncompliance of the NPDES permit occurred due to overapplication of sodium hypochlorite in the service water system that resulted in an exceedance of total residual oxidant (TRO) permit limit of a daily maximum of 300 µg/L because of one TRO sample measuring 360 µg/L (HDI 2023-TN10674). The daily average TRO limit of 200 µg/L was not exceeded. Holtec notified Michigan EGLE and took corrective actions. The event was documented in Palisades' corrective action process (HDI 2023-TN10674)

[This is yet another example of Holtec violating state and federal environmental laws and regulations at PNP. Holtec's misdeeds should be stopped by state and federal agencies, not enabled, accommodated, permitted, etc.]

This topographic configuration supports surface runoff from cooling tower B area to the south toward grassy and wooded areas.

[Are there any hazardous substances flowing with that, building up where it lands/settles/pools? What are the biological impacts, as on habitat in the critical dunes, on flora and fauna and fungi, including endangered, threatened, and species of special concern?]

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Stormwater for the rest of the Palisades site is drained by a stormwater drainage system that eventually discharges into Lake Michigan (Figure 3-3 below).

[How much radioactive and other hazardous contamination flows with that, into the Lake? Which substances, specifically? What are the biological impacts on the ecosystem? NRC and DOE should address these questions, comprehensively, in an EIS/PEIS.]

Figure 3-3

[Is it unsafe that the TURBINE BLDG. and HYDRAZINE...STORAGE appear right next to each other? What about hydrazine spills/releases, as due to a turbo-generator mechanical explosion, due to lack of active maintenance for 2.5+ years and counting? On January 14, 2025, we learned during an NRC-Holtec meeting about steam generator tube degradation, that the reason it occurred was Holtec's lack of putting the steam generators into chemically preservation wet lay up, from May 2022 to May 2024. So, for two long years, the steam generator tubes — already degraded — suffered further, accelerated degradation. Our intervening environmental coalition's expert, chief engineer of Fairewinds, Arnie Gundersen, had warned about this from the get-go. But he also warned from the get-go about the need to rotate the turbo-generator shaft, or else it would bend under its own weight over time. Has Holtec rotated the shaft? How long did the shaft go un-rotated? The danger is a bent shaft could mechanically explode. This very thing happened at Fermi 2 in Monroe County, MI in the 1990s, resulting in 2 million gallons of radioactive wastewater being dumped into Lake Erie's shallow Western Basin. At PNP, due to a historic design flaw, an exploding shaft could send large pieces of metallic shrapnel into the control room, killing or injuring operators, and disabling vital safety-significant SSCs. Likewise, stored hydrazine, stored so closeby, could be impacted and released into the environment. Hydrazine is ultra-toxic, even in small amounts, let alone in large amounts. This risk to the environment, health, and safety should not be allowed.

Hydrazine should not be stored so near the likely bent, and still bending, PNP turbo-generator shaft.]

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installation of the **new barrier/wall**

[Given such new build construction, an EIS/PEIS is called for, not a mere EA. Also, it was admitted by Holtec's outside counsel at the ASLB oral argument pre-hearings held on February 12, 2025, that construction activities are taking place at PNP, as we speak. How is this allowable, given that the licensing proceedings, and even this very NEPA proceeding, have yet to be finalized? Holtec's attorney stated that such construction activities are "at-risk," meaning if they somehow violate law or regulations, Holtec will have to fix such mistakes in the future. But the facts on the ground would create momentum to just let mistakes be — Holtec likely expects no more than a slap on the wrist from NRC, no matter what mistakes they make. Holtec's strategy is to seek forgiveness, rather than permission. Such unauthorized construction activities should be stopped, now, before Holtec makes irreparable mistakes, having a LARGE negative impact on the environment, health, and safety. NRC and DOE have the authority to stop such unauthorized construction, including regulatory and monetary authority.]

Holtec expects site employment levels to peak at 1,600 workers during the preparations for resumption of power operations (HDI 2024-TN10670: RAI-SE-1).

[What are the environmental impacts of such a large number of permanent, as well as temporary, workers? For example, NRC and DOE have identified an endangered turtle species seen recently at the PNP site. Given the vehicular traffic necessary for 1,600 workers alone, will this extirpate the turtle species, as through road kills? What protections will NRC and DOE require of Holtec to prevent such a horrific outcome, which would violate the Endangered Species Act, for one thing, not to mention NEPA as well. This is why an EIS/PEIS is needed. The lower level EA is not sufficient, given this and other high stakes involved.]

Water withdrawn to support spent fuel pool cooling would continue to be returned to Lake Michigan and therefore would result in no consumptive water use. Therefore, the impact of this water use on surface water resources would be minor

[But what about radioactive contamination of that water returned to Lake MI? What about the tritium concentration in it? Other chemical toxins? Again, Lake Michigan is not a radioactive and toxic chemical and thermal wastewater industrial sewer, for Holtec to abuse for decades to come. PNP should be retired rather than restarted, and expanded with SMRs, in order to prevent such ongoing abuse of Lake Michigan.]

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As part of the preparations for resumption of power operations Holtec is considering replacement of both CCW heat exchangers. The potential impacts of the proposed CCW heat exchangers on surface water resources are evaluated in Section 3.4.3.

[Please see Arnie' Gundersen's CCW heat exchanger and cooling tower-related objections and contentions, submitted as expert declaration testimony in the related ASLB licensing proceeding, above.]

3.4.3 Environmental Impacts from the Resumption of Power Operations

Holtec expects site employment to be 600 workers during and after the resumption of power operations (HDI 2024-TN10670: RAI-SE-1).

[Here is yet another data figure regarding the predicted number of jobs at a restarted PNP. In the past, PNP has claimed to have up to 650 employees. This figure of 600 workers can be used to calculate the cost per job at PNP. So far, \$3.12 billion in mostly federal, but also State of Michigan, taxpayer funded bailouts have been awarded to Holtec for the PNP restart. As mentioned above, the Trump administration has said it will repeal/revoke the Inflation Reduction Act of 2022, as well as the Infrastructure Investment and Jobs Act of 2021, and even claw back grants already awarded. This could even lead to the return of \$300 million to the State of Michigan's treasury, because the state grants were predicated on federal funding flowing first. But all that said, 600 jobs, divided by \$3.12 billion, equals 0.0052 billion dollars per job, or \$5.12 million, per job, at a restarted PNP.

But there were still 220 employees at PNP when Holtec took over on 6/28/22, presumably to do decommissioning related work. Holtec, and NRC, has blurred the distinction between decommissioning status, and operational restarted status, ever since. To go from 220 employees, up to 600 employees, means 380 "restored" jobs. 380 "restored" jobs, divided by \$3.12 billion in bailouts thus far, equals 0.0082 billion dollars per "restored" job, or \$8.12 million per "restored" job.

But Holtec has requested more than \$8 billion altogether in federal and state bailouts for the restart scheme. If Holtec does receive \$8 billion in public bailouts, 380 "restored" jobs, divided into \$8 billion, equals 0.021 billion dollars per "restored" job, or \$21 million per "restored" job.

But at one point in the past three years of this PNP restart nightmare we've been forced to deal with, Holtec had stated that only 280 jobs would be "restored," for a grand total of 500 jobs at a restarted PNP. This was stated out loud, and in Holtec's slideshow, at one of the very large number of meetings NRC and Holtec have held, related to the PNP restart scheme.

Now, if the 600 job figure above is to be believed, Holtec has added another 100 "restored" jobs onto its earlier 280 "restored" jobs figure. This moving target exercise is confusing, the opposite of public transparency, which is outrageous, given the vast sums of public money involved. In effect, the U.S. and State of Michigan governments have handed over the keys to the treasuries, so Holtec can laugh all the way to the bank, with up to \$8 billion of hard earned taxpayer money.

If Holtec decides to return to its previous figure of 500 total jobs at a restarted PNP, instead of the figure of 600 above cited by NRC and DOE in this EA, then the figure of 280 "restored" jobs, not 380, should be used. \$8 billion per "restored" job, divided by just 280 "restored" jobs, equals 0.0285 billion dollars per "restored" job, or \$28.5 million per "restored" job.

This figure is interesting, in that on average, in 2023, the cost per new job created with State of Michigan subsidies was a mere \$29,000. \$28.5 million per "restored" job at PNP would be

nearly a thousand times larger than that \$29,000 job creation figure for State of Michigan subsidies. In other words, for the same amount of public funding, a thousand times more jobs could be created in the State of Michigan, if the subsidies were used in other economic sectors, rather than for PNP restart. Given such opportunity costs, DOE's community benefits report, and NRC's socioeconomic analyses, are called into major question. The agencies should address these concerns, comprehensively, in an EIS/PEIS. This EA's analysis is clearly insufficient.

Even if the latest figure of 600 jobs, which means 380 "restored" jobs, is used, 380 "restored" jobs divided into \$8 billion equals \$21 million per "restored" job, which is 724 times larger than the State of Michigan average subsidy to create a new job in 2023. That is, 724 jobs in other economic sectors could be created in Michigan, by using the \$8 billion in federal and state bailouts Holtec has requested for PNP restart. These opportunity costs are outrageous. Clearly, the PNP restart is a very inefficient way to create or "restore" jobs. This is significant, because job creation or "restoration" has been among the leading "Purpose and Need Statements," or supposed justifications, for the PNP restart scheme, from the get-go. This is obviously bankrupt, in more ways than one.]

The evaporative loss in the cooling tower would be 12,000 gpm and the remaining 80,000 gpm of the withdrawn water would be returned to Lake Michigan.

[Some of the evaporative losses would fall back into Lake Michigan and other Great Lakes, but not all. Some would be lost to the Great Lakes basin, by blowing away as steam and water vapor, then returning to Earth in other watersheds downwind.

12,000 gallons/minute X 60 minutes/hour = 720,000 gallons/hour

720,000 gallons/hour X 24 hours/day = 17,280,000 gallons/day

17,280,000 gallons/day X ~30 days/month = ~518,400,000 gallons/month

~518,400,000 gallons/month X 12 months/year = 6.22 billion gallons/year

6.22 billion gallons/year X 26 years (Holtec has indicated it wants to operate the restarted PNP from 2025 to 2051) = more than 161 billion gallons of Lake Michigan water, turned to steam, to blow downwind, resulting from the PNP restart (not accounting for refueling outages and other non-operational status periods of time, such as unexpected shutdowns).

161 billion gallons of Lake Michigan water turned to steam is a lot. How much of that would fallout outside of the Great Lakes basin, into other watersheds? Why was this figure not provided in this EA? It should be provided, in an EIS/PEIS.

What environmental impacts will result from 161 billion gallons of Lake Michigan surface water turned to steam, so that PNP can restart and operate from 2025 to 2051?

But how much worse will such consumptive water use become once two SMR-300s are also operational at PNP? Are NRC and DOE accounting for such cumulative impacts? Not adequately, it appears — far from it. Such cumulative effects, and such clearly major impacts,

should be addressed in an EIS/PEIS. We don't want the Great Lakes State to turn into the Not So Great Lakes State, given such Holtec schemes.]

Over a year of operations, the evaporative loss would be less than 0.001 percent of the water volume of Lake Michigan.

[But, there is such a thing as death by a thousand cuts. Palisades's restarted "zombie" reactors, plus two SMR-300 new builds, would represent three big cuts, not little ones.]

The NRC staff has concluded that the plant water use following resumption of reactor power operation would be similar to Palisades' previous power operation. In the 2006 SEIS, the NRC staff determined that all cooling system-related surface water use impacts for power operations at Palisades were small (NRC 2006-TN7346).

[Have there been any power uprates at PNP since 2006? If yes, why was that information not provided here? Are there any planned by 2051? If yes, why has that information not been disclosed here? This would make the "zombie" reactor itself worse in these regards.]

Because there would not be any changes to power generation capacity and the circulating water system, the NRC staff expects that the thermal discharges to Lake Michigan would be comparable to previous power operations.

[But this is not correct. See Arnie Gundersen's expert witness submissions on the CCW heat exchangers being doubled in size, cooling tower implications, etc., above.]

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Holtec is considering replacement of both CCW heat exchangers before resuming power operations at Palisades (HDI 2024-TN10670: RAI-SW-11). Palisades uses two existing CCW heat exchangers, each of which has a nominal 50 percent cooling capacity. The CCW system is the secondary, closed cooling loop that uses service water and is the intermediate cooling system between the radioactively contaminated systems and the tertiary, open loop service water system that comprises the ultimate heat sink. The existing system requires both CCW heat exchangers to be in service due to flow rate limitations. The proposed CCW heat exchangers will each have a nominal 100 percent capacity, which allows operational flexibility. Holtec would not make any changes to the service water side of the CCW heat exchangers and therefore no changes to the interface to the surface water environment are expected.

There is no change to the heat loads that are serviced by the proposed CCW heat exchangers. The total service water flow rate is also not expected to change; the service water flow may be through one or both proposed CCW heat exchangers depending on whether one or both proposed CCW heat exchangers are in use. There is no consumptive water use associated with the CCW heat exchangers. Therefore the proposed CCW heat exchangers would not affect surface water resources. ***[Emphasis added]***

[Again, compare NRC and DOE's statements here, with Arnie Gundersen's critiques, above. Holtec's doubling of the size and capacity of the CCW heat exchangers makes no good sense, other than perhaps as a make work to make money scheme for Holtec, utilizing vast amounts of

public funding, yet another instance of waste, fraud, and abuse associated with the PNP restart scheme. If they were to undertake doing any such modifications, it should be to add more cooling tower arrays, not to double the size/capacity of the CCW heat exchangers, per expert witness Arnie Gundersen.

The highlighted part also makes no sense, given Holtec's press release admission, cited by Gundersen in his testimony, acknowledging that Lake Michigan surface water temperatures are significantly increasing due to global warming.]

P. 59/242 ON PDF COUNTER (page 3-19)

a new spent fuel pad

[What about Indigenous Nations' burial sites and other sacred cultural sites at PNP? What about that pledge to be careful and stop work that Consumers Energy and NRC made in 2006-7, in response to our coalition's warnings, in our 2006 comments on the SEIS draft mentioned above? Indigenous Nations are supposed to trust Holtec to STOP WORK if burials or other sacred cultural sites are encountered during construction activities? What about Holtec's infamous record of dishonesty, for example, lying under oath on New Jersey tax break application forms, not once but twice. The AG of NJ fined Holtec \$5 million for one of those lies, and has appealed to the Supreme Court of NJ, in an attempt to claw back another \$260 million of tax breaks Holtec has enjoyed, based on a second lie. Holtec cannot and should not be trusted to STOP WORK if and when it encounters culturally significant Indigenous Nations sites at PNP during construction activities.

Holtec has proposed building this third dry cask pad in between the two already present. Holtec had mentioned in its December 2020 PSDAR that it would transfer the casks from the oldest pad, nearest the Lake, to the newer pad, a bit further inland (located very close to the Van Buren State Park campground.

But the two pads that already exist at PNP, according to retired NRC whistleblower Dr. Ross Landsman, are in violation of NRC earthquake safety regulations.

We incorporate by reference as if fully rewritten herein the following documents associated with Dr. Ross Landsman's warning, beginning 31 years ago this month, about violation of earthquake safety regulations at PNP dry cask storage pads, and the dire consequences that could result:

February 17, 1994: [Letter from Dr. Ross Landsman, NRC Region III dry cask storage inspector, to NRC Chairman Ivan Selin, warning about the risk at Palisades that an earthquake could result in high-level radioactive waste storage casks falling into Lake Michigan or being buried in loose sand. Dr. Landsman writes](#) "Actually, its (sic) 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...It is apparent to me that NMSS doesn't realize the catastrophic consequences of their continued reliance on their current ideology." Underwater submersion could lead to inadvertent nuclear chain reactions in the fissile materials still present in the wastes; burial under sand could cause the wastes to dangerously overheat.

Feb. 2, 2007: [Declaration by Dr. Ross Landsman, retired NRC dry cask storage inspector, supporting NIRS contentions about earthquake risks to dry cask storage at Palisades.](#)

As NRC has made such grave errors at PNP in the past, in terms of approving dry cask storage pads in violation of their own earthquake safety regulations not once, but twice, it is vital that such an error not be made again. An EIS/PEIS should be prepared, to take a “hard look” at this newly proposed dry cask storage pad, such as to make sure it complies with NRC earthquake safety regulations.

By the way, Holtec’s plan to transfer dry casks from the older pad nearer the Lake, to the newer pad a bit further inland, mentioned in the December 2020 PSDAR, begs the question, does Holtec agree with Dr. Landsman that the older pad nearer the Lake is unsafe? And has Holtec changed its plans as described in the December 2020 PSDAR? Are the older pad nearer the Lake’s cask going to this new third pad, instead of to the second pad? Regardless, this new pad, if it will store dry casks loaded with highly radioactive irradiated nuclear fuel, must be compliant with all NRC safety regulations, including those associated with earthquakes. We would add that PNP’s dry casks should be hardened. We therefore incorporate by reference as if fully rewritten herein, Principles for Hardened On-Site Storage (HOSS), which many organizations in this environmental coalition making these comments, and intervening against PNP’s restart, have endorsed for nearly a quarter-century:

<https://archive.beyondnuclear.org/on-site-storage/2020/8/19/principles-for-safeguarding-nuclear-waste-at-reactors-harden.html>

potential subsequent license renewal (SLR) of Palisades

continued operation of existing mines

[An 80-year license at PNP, which Holtec has indicated it will apply to NRC for, would extend operations till 2051. But what about a 100-year license? Is this not reasonably foreseeable? After all, NRC EDO Luis Reyes spoke favorably about 100-year reactor licenses, a good two decades ago. There has been plenty more talk about it since. It’s been talked about, not only by industry but even by NRC, for decades now. Why was it not discussed by NRC and DOE in this EA, as a cumulative effect?

Continued operation of existing mines? What about new mines, including uranium mines previously proposed in Michigan’s Upper Peninsula more than a decade ago? What about resumption of uranium mining and milling in the Elliot Lake/Serpent River (Ojibwe) First Nation region of Ontario, Canada. The environmental effects from such uranium mining and milling have harmed the Great Lakes since the 1940s, and would continue to do so if expanded into Michigan’s UP, and/or resumed in Ontario. Just because there is an imaginary dotted line down the middle of the Great Lakes, does not mean that such activities would not harm Canadians downwind and downstream, and vice versa. In fact, binational impact environmental reviews are required, under the terms of the International Joint Committee and its organic treaty from 1909. Have NRC and DOE consulted with their Canadian counterparts under the terms of the IJC, re: PNP impacts on the Great Lakes, including from uranium mining and milling that could be undertaken to fuel PNP in the future? If not, why not? The same sort of questions need to be addressed regarding nuclear waste dumping that could result on either side of the Great Lakes, in Canada and/or the U.S., resulting from PNP restart. And along the same lines, radioactive

wasset transport in the Great Lakes basin, including barges on the surface waters, as Holtec has proposed in its Palisades PSDAR dated December 2020, fully embracing a US DOE scheme first floated in Feb. 2002 under the Yucca Mountain dump planning. For this reason, we incorporate by reference, as if fully rewritten herein, the following document:

<https://www.nirs.org/wp-content/uploads/factsheets/mibargefactsheet92804.pdf>

Note in this document that cumulative effects of barge shipments of highly radioactive waste from other reactors, as in Wisconsin, needs to be accounted for. In fact, due to PNNL's research, on DOE's behalf, for barge shipping options from a growing list of Great Lakes shoreline reactors, all such cumulative impacts must be addressed in a EIS/PEIS.

In fact, all nuclear industry impacts on the Great Lakes should be included in such a cumulative effects analysis in an EIS/PEIS. For this reason, we incorporate by reference as if fully rewritten herein the following two maps, showing the extent of damage already inflicted on the Great Lakes, by nuclear industry facilities in the US and Canada:

<http://beyondnuclear.org/wp-content/uploads/2025/02/Great-Lakes-Nuclear-Hotspots-Map-Final.jpg> (2013 map by IICPH and GLU);

<http://beyondnuclear.org/wp-content/uploads/2025/02/great-lakes-nuclear-hot-spots.bmp> (1990-1991 map by Irene Koch and David Martin).]

3.5 Geologic Environment and Groundwater Resources

[How about those drinking water wells the supply PPCC? If they've dodged bullets all these decades, will they continue to?]

Mississippian age (358.9–323.2 million years ago) Coldwater Shale underlies the region and was identified at 440 ft (130 m) above MSL within the vicinity of the containment building.

[Does Holtec plan to frack the PNP site, or allow other companies to frack at/near the PNP site, given the presence of shale? What would be the impacts upon PNP, and what risks would this cause to environment, health, and safety?]

There are no noted geologic resources in the vicinity of Palisades.

[This statement contradicts another admission in the EA, that the PNP site served as a sand quarry, before PNP broke ground in 1967. And what about groundwater used as drinking water via wells, as at Palisades Park Country Club. Groundwater beneath PNP, and groundwater beneath PPCC, being so closely adjacent, could well be connected in ways yet unknown, since very little to no studies have been undertaken about it.]

There are 187 known active wells within 2 mi (3.2 km) of Palisades, the majority of which are domestic wells completed in unconsolidated glacial deposits (DTMB 2024-TN10677).

[That's a lot of potential contamination of drinking water by PNP. Are any of these known active wells uphill from PNP's radioactive areas? Even despite this, Ian Fairlie has warned that tritium can travel upstream, even in surface waters like rivers. What is the potential in contained groundwater, even just through diffusion, let alone tritium's capacity to flow upstream? What dangers does PNP's contamination of groundwater pose for nearby drinking water wells, such as those used in PPCC? Why have NRC and DOE not undertaken studies of the interconnections between aquifers under PNP and PPCC? What impacts will fluctuating levels of water in Lake Michigan have on these dynamics, and risks of PNP contamination entering groundwater tapped via wells for drinking water? If climate change causes Lake Michigan's water levels to rise (as they rose to historic high levels in spring 2020), could this drive contamination in groundwater beneath PNP further inland and even uphill, such as contaminating PPCC drinking water/well water? Why was no such analysis included in the EA?]

Within the vicinity of the Palisades site, groundwater is unconfined within the dune sand and flows toward Lake Michigan (NMC 2005-TN10678).

[Are NRC and DOE so sure of this? There are no connections whatsoever between groundwater at PNP and groundwater, used as well water for domestic use, at PPCC? Recall, Yucca Mountain, Nevada is one of the best known/most studied sites on Earth re: hydrogeology. After all, billions of dollars were spent on such site studies there — which showed, by the way, how unsuitable, from a technical and scientific perspective, Yucca Mountain is for highly radioactive waste disposal. Dr. Arjun Makhijani of IEER has stated that Yucca Mountain, Nevada — Western Shoshone Indian land — is the worst site ever contemplated for a highly radioactive waste dump, from a scientific and technical perspective alone. And yet even at Yucca Mountain, despite the vast sums spent to study hydrogeology, there are still many significant gaps in knowledge. At PNP and PPCC, little to know hydrogeologic studies — such as connections between the two adjacent sites' groundwaters — have ever been undertaken, to the best of our knowledge.

Also, Holtec has big plans to dig up and disturb the site, such as building two SMR-300s. Who is to say Holtec won't even unknowingly and inadvertently pierce a geologic aquifer divider, allowing PNP's contaminated groundwater to flow into PPCC drinking water aquifers?

Regardless, Lake Michigan is also a source of drinking water. So PNP's contaminated groundwater flowing into Lake Michigan — as well as surface contamination flowing downwards deeper into sand and soil, or flowing directly into Lake Michigan as surface runoff — will do so as well.

PNP is treating groundwater as a radioactive industrial septic field. PNP is treating Lake Michigan as a radioactive and toxic chemical nuclear-industrial wastewater sewer. Such abuses must stop.]

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Palisades monitors 29 groundwater wells in support of the Industry Groundwater Protection Initiative (GPI)(NEI 2019-TN6775). Monitoring under National Emissions Inventory 07-07 continued after operations ceased at the plant (HDI 2024-TN10679). The wells are screened within the dune sand and sampled quarterly for gamma activity and tritium (Holtec 2023-

TN10538). Between 2009 to 2022, Palisades reported experiencing 10 instances of elevated tritium detected in onsite wells (see Table 3-4 of this EA for details). From January 1, 2023 to June 26, 2024, tritium was detected in MW-2, MW-11, TW-17, and TW-18 at a maximum concentration of 1,441 picoCuries per liter (pCi/L) at TW-17 (HDI 2024-TN10679). Groundwater sample data from MW-2, MW-3, MW-11, and MW-13 indicate tritium releases have impacted onsite groundwater. However, tritium has not been detected in groundwater in the lower dune sand, indicating that impacted groundwater is within the upper 10–15 ft (3–4.6 m) of the aquifer (Holtec 2023-TN10538: Section 3.2.1.2).

[But what about the 645,000+ pCi/L tritium concentration leak or spill, recently revealed — as in an NRC inspection report — at about the same time as the 11/20/24 NRC meeting in Benton Harbor, MI? How come that is not included here? This is but the latest tritium leak/spill/discharge to the environment revealed at PNP.]

For that reason, we incorporate by reference as if fully rewritten herein, a report by Paul Gunter at Beyond Nuclear, about tritium leaks/spills/discharges, including a section about PNP itself:

<https://archive.beyondnuclear.org/reports/>

As NRC and DOE admitted above, tritium in sand dune groundwater flows into Lake Michigan, another impact on Lake Michigan, and its drinking water supply.

In a 2013 report about health impacts at/near PNP, Joe Mangano at Radiation and Public Health Project, cited a US EPA data point, a snapshot figure of 2,500 pCi/L, from the mid-1990s in open Lake Michigan surface water, several miles dilution factor north, at South Haven. What much higher concentration must it have been at when it was discharged at PNP?]

We thus incorporate by reference as if fully rewritten herein Mangano’s 2013 report on PNP:

<https://static1.1.sqspcdn.com/static/f/356082/23338979/1376923567073/8+19+13+Mangano+Palisades+report.pdf?token=kktM17PzcXPbZE5P9G2pP3ttgUA%3D>

Why is 2009 the oldest/earliest date in EA Table 3-4? After all, PNP had a tritium leak scandal in 2007, as documented in Paul Gunter’s report above.

See Kay Drey’s “routine releases releases” pamphlet, above, for more information on the hazards of tritium being leaked, spilled, and intentionally discharged into the air and water, as at PNP. It includes a photograph, taken by Gabriela Bulisova, showing the PNP surface water wastewater discharge pathway, used for tritium and other radioactive wastewater, toxic chemical wastewater, and thermal heat pollution wastewater dumping inot Lake Michigan.]

“less than the EPA drinking water MCL of 20,000 pCi/L.”

[In 2009-2013 Description. As if that is all right, acceptable, or protective of human health and the environment. It is not. Dr. Arjun Makhijani has written articles about much stricter tritium standards in place elsewhere, such as in the State of Colorado, and the State of California, as well as a Province of Ontario advisory board’s recommendation for much more strict tritium contamination standards than the current US EPA’s SDWA standard.]

We thus incorporate by reference as if fully rewritten herein the following relevant articles by IEER, including “Health Risks of Tritium: The Case for Strengthened Standard,” as well as “Healthy from the Start: Building a Better Basis for Environmental Health Standards – Starting with Radiation,” both articles by Arjun Makhijani, Brice Smith, and Michael C. Thorne, contained in IEER’s newsletter dated Feb. 5, 2007, dedicated to Healthy from the Start / Tritium (Vol. 14, No. 4) at the following link:

<https://ieer.org/wp/wp-content/uploads/2012/01/SDA-14-4.pdf>

We also incorporate by reference as if fully rewritten herein Dr. Makhijani’s Feb., 2023 book, Exploring Tritium Dangers, posted online at this link:

<https://ieer.org/wp/wp-content/uploads/2023/02/Exploring-Tritium-Dangers.pdf>

We also incorporate by reference as if fully rewritten herein a 2005 NIRS press release about the NAS BEIR Committee’s reaffirmation of the linear, no threshold theory regarding radiation harm to human health:

<http://archives.nirs.us/press/06-30-2005/1>

MW-11 and T-91 are mentioned more than once, over time. So they never really did fix the leaks to begin with? They allowed continuing leakage from the same source? So, poor Root Cause Analysis and Corrective Action? Holtec will likely be even worse than Entergy in this regard, given its inexperience, incompetence, corruption, and the fact it just doesn’t care. At least Entergy had a lot more experience, even if it was also incompetent and just didn’t care. Holtec has never operated a reactor before, let alone one as problem-plagued for more than half a century as PNP.]

Tritium concentrations decreased below EPA MCL.

[Again, per above, that’s not saying much. EPA SDWA MCL of 20,000 pCi/L for tritium is very high, and not health protective.]

2019

No action taken as no new significant dose pathway and release previously reported under a batch release process.

[In other words, just let it wash out into the Lake? Who cares? Does NRC = Nobody Really Cares? PNP batch releases are problematic themselves. Performed once per season, does this mean that PNP, without having to warn swimmers, beachgoers, and boaters, could do a batch release of radioactive and toxic chemical wastewater, built up over three months, on a hot August Saturday? There could be hundreds of people impacted by that, a concentrated radioactive and toxic chemical exposure, at point blank range.

Table 3-4 reveals an epidemic, a plague of tritium leaks and releases at PNP over time.

PNP is leaking like a sieve, has been for a long time. It began as a nuclear lemon, but now has age-related degradation increasing the risks significantly.

Per Benton Harbor resident Barbara Pellegrini above, tritiumj leaks, spills, and intentional discharges into Lake Michigan from PNP represent an increase of tritium concentrations in the Lake, because it is not natural — it is artificial — and it's not just PNP — it's all the tritium sources around the Lake, including all the atomic reactors, but also tritium contaminated exit signs buried in leaking landfills, the flow then entering local surface and groundwaters, so of which ultimately flow into the Great Lakes. Only 3 to 24 pCi/L is natural tritium in surface water, as mentioned previously. So the EPA data point measured in South Haven, several miles from PNP, cited by Mangano above, of 2,500 pCi/L in open Lake Michigan surface water in the mid-1990s, is more than 100 to 800 times natural concentration levels — very likely discharged from PNP.

The recently disclosed PNP measurement of tritium contamination at concentrations above 600,000 pCi/L is more than 25,000 to 200,000 times higher than natural tritium concentrations in our planet's surface waters.

All such leaks can be expected to grow worse over time, especially given restarted operations, and renewed artificial tritium generation — NRC and industry have downplayed tritium risks for many decades, especially after the Braidwood, IL scandal of the early 2000s, brought to light by the Sauer family, who young daughter was diagnosed with a rare childhood brain cancer, as well as smoking gun revelations of Commonwealth Edison/Exelon, in cahoots with the IL EPA, covering up massive, concentrated tritium leaks into the ground, groundwater, and Kankakee River at Briardwood nuclear power plant.]

May 2022

Elevated tritium detected in a water sample collected from the 1C switchgear sump within the protected area at a maximum concentration of 645,255 pCi/L.

[Why did it take till 11/20/24 for us to find out about this? And from a reporter at WWMT, not from Holtec nor NRC. Nor from Entergy, nor MI EGLE, etc. The public had to wait 2.5 years to learn about this highly concentrated tritium leak? What possible excuse do the companies and government agencies have for not disclosing this leak promptly?

As 645,255 pCi/L is significantly more than 600,000, those figures calculated just above in our comments are very conservative.]

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Additionally, between April and September 2018, the P-8D Auxiliary Feed Water Pump and associated piping was installed. This area is a known area of previous inadvertent radiological releases. Almost 700 gamma isotopic analyses were performed, of which 19 samples contained detectable **Co-60 and/or Cs-137**. This material was disposed of as radioactive waste (HDI 2024-TN10843: RCI-GW-2a). **[Emphasis added]**

[Cobalt-60 and Cesium-137 are especially hazardous to human health, and the health of other flora and fauna. And yet NRC and DOE have declared FONSI across the board in this EA, even in the face of such admissions?]

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Palisades discharges some radiological waste into Lake Michigan after dilution in the mixing basin in accordance with criteria established in 10 CFR Part 50, Appendix I (NRC 2006-TN7346).

[Per Barbara Pellegrini, it is not dilution, it is increasing concentration of hazardous artificial radioactive isotopes, generated at PNP, in Lake Michigan. Where is the environmental and health protection we pay for as U.S. and State of Michigan taxpayers?]

The NRC staff reviewed 5 years of available radiological release reports (2019–2023 monitoring results), in addition to radiological environmental monitoring program (REMP) results. REMP results are provided in Annual Radiological Environmental Operating Reports (Entergy 2020-TN10687, Entergy 2021-TN10686, Entergy 2022-TN10685; HDI 2023-TN10684, HDI 2024-TN10771).

[Why just five years of look back data? Why not look back to 1971, when radiological operations began at PNP? Why such a shallow review? 5 years back, instead of 50+?]

The cessation of operations at Palisades resulted in a decrease in liquid effluent releases to Lake Michigan and to total tritium discharged via groundwater (Entergy 2022-TN10681; HDI 2023-TN10680, HDI 2024-TN10679).

[Restarting PNP and operating it for a quarter-century into the future, and nearly doubling the nuclear megawattage on the tiny 432 acre site, by adding two SMR-300s, will quickly reverse the humble beginning of Lake Michigan's healing mentioned in the EA.]

In 2023, Holtec estimated an activity of 1.82×10^{-3} Curies (Ci) was discharged from onsite groundwater to the lake, compared to 1.1682×10^{-1} Ci in 2021, Palisades' last full year in operation (HDI 2024-TN10679; Entergy 2022-TN10681). The tritium discharged via groundwater over the past 5 years represents a small portion (≤ 1 percent in any given year) of the total liquid tritium discharged from Palisades. None of the surface water and drinking water samples collected as part of the plant's REMP monitoring contained measurable radiological materials attributed to Palisades' effluents in the past 5 years (Entergy 2020-TN10687, Entergy 2021-TN10686, Entergy 2022-TN10685; HDI 2023-TN10684, HDI 2024-

[All the more reason to keep PNP shut down for good. All the more reason for analyses to go further back in time, to 1971]

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Holtec maintains a SPCC-PIPP for the management of inadvertent release of oil, salt, and polluting materials. Internal procedures are also in place for the storage, handling, cleanup, and disposal of chemicals at the Palisades site (Holtec 2023-TN10538). Additionally, a SWPPP that

includes BMPs to prevent pollutants from entering stormwater, to direct the flow of stormwater, and to treat stormwater is maintained by the Palisades site.

[Have there been any “shortcuts” taken at PNP? Like just dumping directly in the Lake, intentionally, or allowing to flow into the Lake, with water flows at the surface as runoff?]

3.5.2 Environmental Impacts from the Preparations for the Resumption of Power Operations

Planned activities include underground pipe repairs to fix the leaking condensate storage tank (T-2) and the Utility Water Storage Tank (T-91) piping and the construction of two new buildings within the protected area.

[No mention — here anyways — re: Indigenous burials and other sacred, culturally significant sites. Will Holtec abide by what meager assurances Entergy and NRC gave in 2006 re: their supposed commitments to safeguard Indigenous sacred sites?]

Talk is cheap. Are these safeguards worth the paper they are written on? Who is going hold Holtec and NRC’s feet to the fire on all this?]

Current groundwater use at the Palisades site is different from that described in the 2006 SEIS (NRC 2006-TN7346). Groundwater use at the Palisades site was discontinued in 2019 and groundwater is not anticipated to be used during the resumption of power operations. There are no current or planned continuous contaminant plume extractions or other dewatering activities at Palisades (Holtec 2023-TN10538). Site-specific programs (e.g., SPCC-PIPP, SWPP, NPDES) and BMPs are and will continue to be utilized at the site to manage and reduce the occurrence of inadvertent releases of nonradiological contaminants.

[They won’t use groundwater, unless and until they decide to use groundwater. Just because PNP now claims not to use groundwater, in the present, that is no justification to allow its ongoing contamination, nor to neglect clean up of past groundwater contamination.]

What about ADVERTENT and INTENTIONAL releases of chemical toxins, and radioactivity? What assurances do NRC and DOE have that Holtec won’t engage in such misdeeds at PNP? For example, at Pilgrim nuclear power plant decommissioning site in Massachusetts, when stopped from dumping radioactively contaminated water into Cape Cod Bay, Holtec then began evaporating it into the air. Instead of a hazardous surface water exposure pathway (including eating local seafood), area residents were exposed to hazardous radioactive inhalation doses, due to Holtec’s ghoulish, sociopathic misdeeds.]

Palisades monitors onsite groundwater in accordance with the GPI to ensure timely and effective management of situations involving inadvertent releases of licensed material to groundwater. Since decommissioning, tritium is the only radionuclide detected onsite in the dune-sand aquifer due to previous unplanned releases. Groundwater containing tritium discharges to Lake Michigan represents a small portion (typically ≤ 1 percent) of the total tritium

[Tritium is often but the leading edge — the canary in the coal mine — for other even more hazardous radionuclides to follow. This is due to its extremely small molecular size, water solubility, volatility, chemistry, etc. Tritium is hazardous enough, but even more hazardous radioactive pollutants could well follow in its wake. For example, strontium-90 followed tritium]

out a leak in Indian Point, New York indoor wet storage pool for highly radioactive waste, into groundwater, and then into the Hudson River, contaminating fisheries.]

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discharged to the lake via regulated batch liquid effluent releases.

[So these “inadvertent” (but commonplace, “unavoidable,” “inevitable”) releases are nothing compared to the intentional ones? Please see Kay Drey’s pamphlet, cited and linked above.]

No radiological material attributed to Palisades has been detected in drinking water or surface water samples near the plant, and there are no registered groundwater wells downgradient of groundwater flow from the Palisades site.

[How can that possibly be? Doesn’t this violate physics, chemistry, biology? South Haven’s drinking water intakes are 4 miles or less away. How can the tritium and other radioactive waste have disappeared into absolute nothingness after being leaked, spilled, or intentionally discharged into the Lake? Clearly, Holtec, NRC, and DOE are not looking very hard at this. This is magical thinking, which is dangerous, willfully blind to risks, impacts, and consequences. How can DOE and NRC say this, when Mangano cited EPA as having measured tritium at concentrations of 2,500 pCi/L at South Haven, very near the municipal drinking water intake pathways drawing water from Lake Michigan there?]

Key past and present actions affecting groundwater resources include the planned construction of multiple SMRs and the potential SLR of Palisades. The SMRs are planned to be constructed within the Palisades site boundary and additional groundwater monitoring wells could be installed to supplement the current groundwater monitoring program (SMR 2024-TN10713). Excavation for the nuclear power block associated with the SMR modules may extend to a depth of approximately 140 ft (43 m) below grade (NRC 2018-TN7244), which would likely require the application of methods (e.g., grouting and dewatering) to stabilize the deep excavation during construction.

[Lake Michigan had historic high water levels in spring 2020. Did this cause changes to groundwater flows, at/near PNP, at/near PPCC? Could even higher Lake levels, as due to rain bombs caused by climate chaos, “push” contaminated groundwater into aquifers used by PPCC for drinking water via wells?

Could SMR new build construction “pierce” geological divides between aquifers, allowing contamination to flow into PPCC drinking water wells?

And what about the critically endangered dunes’ status all around PNP? How can large-scale construction — unneeded at that — be allowed at PNP in the year 2025, given the inevitable, major, negative environmental impacts? This is the opposite of environmental enlightenment, lessons (that should have been) learned (but were not), a return to past Dark Ages of industrial devastation of fragile ecosystems, including the one at/near PNP. That is why an EIS/PEIS is necessary, and a comprehensive, adequate Cumulative Effects analysis, which has not been done in this EA.]

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3.6 Terrestrial Ecology

[PNP is located amidst critically endangered sand dunes, including forested dunes, as well as wetlands, all adjacent to the beach and shore of Lake Michigan, a planetary ecological treasure. Is there more fragile and critically endangered terrestrial ecological habitat than that? And yet Holtec plans to trash it even further than Consumers Energy did from 1967 to 2007, and Entergy did from 2007 to 2022. And NRC — as well as other federal and state agencies (EPA, DOE, FWS, EGLE, etc.) — bless all of it, every single time. This is not environmental, health, and safety protection, despite these agencies' mandates.]

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incorporating by reference where relevant

[Given NRC and DOE's precedent, we have incorporated by reference, as if fully rewritten herein, on numerous occasions, in our own comments.]

As described in Section 3.2 of this EA, the entire Palisades site is protected under CZMA (MEGLE 2020-TN10692). In a letter dated August 30, 2024 (HDI 2024-TN10670: RAI-GEN-3, Attachment 2), Michigan EGLE stated that the 2005 CZMA certification and conditions remain valid through the expiration of Palisades' operating license, if conditions outlined in the letter are met, and that it does not waive need for other permits.

[MI EGLE is not protecting the Coastal Zone very well at PNP, to put it politely.]

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3-27

Figure 3-4

[Both of the two largest Freshwater Wetlands already appear significantly impacted by Palisades, given how close they are to major developed land there. This includes dry cask storage of highly radioactive waste at the northernmost location — even the gamma and neutron emissions (radioactive shine) would impact flora, fauna, and fungi, perhaps significantly. And yet NRC and DOE do not mention such impacts at all here.]

Michigan regulates activities in designated critical dune areas (CDA) to protect coastal dunes along Lake Michigan, requiring a use permit for regulated activities within CDAs (Michigan Compiled Law § 353-TN10693).

[Such a claim is dubious, given that the State of Michigan let PNP be built in such a CDA. PNP began as a lemon of an atomic reactor, and now has very severe age-related degradation risks

on top of that, portending very large impacts on the environment, health, and safety if it is restarted.]

Approximately 244 ac (98.8 ha) of the CDAs are barrier dunes, and 3 ac (1.2 ha) are an exemplary dune associated plant community outside of designated dune formations (PC-43, Mesic Southern Forest).

[So, that is a postage stamp-sized vestige of what would otherwise have been present throughout the site, had it not been “nuked” since 1967, the year of PNP’s groundbreaking. And now they want to “nuke” it yet more, for many decades to come, both with “zombie” reactor’s restarted operations, as well as the SMR new builds construction and operations.]

The applicant has a current permit (MEGLE 2020-TN10696, expires 04/16/2025) from Michigan EGLE for maintenance dredging of sand along security fences, other security infrastructure, and stormwater outfall structures.

[MI EGLE should deny extension or renewal of this maintenance dredging permit. PNP should be retired as long planned.]

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The NRC staff independently accessed the U.S. Fish and Wildlife Service (FWS) Information for Planning and Consultation database on May 21, 2024, and received a list of 11 species listed as threatened, endangered, or candidate under the Federal ESA (FWS 2024-TN10697).

[May 21, 2024 was before PNP reactor restart environmental scoping was even announced. This would not occur till more than a month later. Was it legal for NRC and DOE to have begun work on this EA, even before the public was notified the work was being undertaken? Was this done because NRC and DOE trying to accommodate Holtec’s high-risk rush job of a restart scheme schedule, while also keeping the concerned public and opponents to restart in the dark for as long as possible, to put us at a disadvantage? What is the rush? — as commentators at the environmental scoping session on 7/11/24 in Benton Harbor, MI asked.]

The database indicated that ***no designated or proposed critical habitat*** occurs within the action area. ***[Emphasis added.]***

[But how could this possibly be? Critically endangered, and fragile, sand dunes, including with forests and even wetlands contain no critical habitat, in this unique Great Lakes shoreline ecosystem, hosting a rich biological diversity of rare, indigenous flora, fauna, and fungi? Is it that the site has so long been trashed already — since ground was broken in 1967 for PNP construction — so NRC and DOE are fine with it being trashed even more so, indefinitely into the future as well? That bad attitude means this site’s ecosystem may never recover, at least not for a very long time to come, from the abuses heaped upon it. NRC and DOE’s words wood seem to fly in the face of what they’d just acknowledged above, MI’s designation for hundreds of acres of the site as CDA, a critical dunes area.]

the NRCs 2024 effects determination

[missing apostrophe — it should read NRC's]

During the NRC staff's environmental review for the 2006 SEIS (NRC 2006-TN7346), the staff evaluated the effects of Palisades operations on four federally listed species (Indiana bat [*Myotis sodalis*], Pitcher's thistle [*Cirsium pitcherii*]; Karner blue butterfly [*Lycaeides melissa samuelis*]; Mitchell's satyr butterfly [*Neonympha mitchellii mitchellii*] and one candidate species — eastern massasauga [*Sistrurus catenatus*]). In 2016, eastern massasauga was federally listed as threatened (81 FR 67193-TN10698). Of these five species, only Pitcher's thistle was then known to occur on the Palisades site, and the NRC effects determination was "may affect, not likely to adversely affect." In a letter dated May 15, 2006 (DOI 2006-TN10699), FWS agreed that **the 2006 SEIS did not involve any major construction or physical alteration of the action area** and concurred with the NRC staff's effect determinations for these species (summarized in Table 3-5 of this EA). **[Emphasis added.]**

[The "zombie" reactor restart involves major construction; so too two new build SMR-300s. So, how can they stand by this 2006 conclusion?]

The 2006 SEIS did not consider six species that were either not designated under the ESA at that time or were federally listed but not expected to occur within the action area at that time (NMCCO 2005-TN10839): northern long-eared bat (*Myotis septentrionalis*, listed as threatened in 2015 [80 FR 17974-TN4216] and reclassified as endangered in 2023 [87 FR 73488-TN8545]), tricolored bat (proposed for listing as endangered in 2022 [87 FR 56381-TN8546]), rufa red knot (*Calidris canutus rufa*; listed as threatened in 2015 [79 FR 73706-TN4267]), **piping plover (*Charadrius melodus*; listed as endangered in 1985 [50 FR 50726-TN5502])**, whooping crane (*Grus americana*; designated experimental, not essential populations in 2001 [66 FR 33903-TN9652]), and monarch butterfly (proposed as threatened in December 2024 [89 FR 100662-TN10959]). **[Emphasis added.]**

[The number of endangered species has doubled since 2006; why was this NOT included in 2006, if it has been endangered since 1985? Doesn't that major oversight invalidate the entire 2006 SEIS? Instead of a "hard look" under NEPA, and endangered species protection under the ESA, as required by law and court precedent for environmental and endangered species protection in this "rule of law" country, NRC simply went forward with the 2006 SEIS, which completely ignored a local endangered species, that had been designated as such for 21 years previously? And PNP has been allowed to operate from 2011 to 2022, based on the SEIS that contained such a glaring omission? To make matters worse, this omitted endangered species happens to be an iconic one, beloved on the Great Lakes shorelines. Are there endangered or threatened species, or species of special concern, that NRC and DOE have neglected to include in this 2025 EA?]

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In the 1980s and 1990s, Pitcher's thistle was known to occur near the cooling towers but was not present at this location in 2005 (NRC 2006-TN7346).

[This should not be surprising. NRC and DOE have described in this EA how the PNP cooling towers used sulfuric acid, so the cooling tower plume wreaked havoc on nearby flora. So, PNP's operation extirpated this local population of this endangered species? PNP has done its part locally, in the mass extinction of countless species under way on Planet Earth. And the federal and State of Michigan agencies that are supposed to protect endangered and threatened species, and species of special concern, have let PNP get away with it.]

Table 3-5

NEP = in the vicinity of the action area, this species is part of a **nonessential experimental population**

NE = No effect

[Emphasis added.]

[How can this be said of Whooping Cranes — there are mere hundreds left in the entire world. How can any population of Whooping Cranes be designated “nonessential”?]

NLAA = may affect, not likely to adversely affect.

[These flippancy conclusions — NE, NLAA — are signs that NRC, as well as FWS, are themselves a severe threat to these already threatened and endangered species, as well as species of special concern. We contest these conclusions.]

n/a = not applicable, because **the NRC staff did not evaluate this species in the 2006 SEIS** (NRC 2006-TN7346)

[Emphasis added.]

[Why not? So, since 2006, a number of these species became threatened or even endangered — and NRC didn't care enough to even consider them in the 2006 SEIS? Isn't this an indication that NRC is either incompetent, or does not regard the ESA and NEPA important enough to enforce, to the letter and in the spirit of the law? No wonder species are becoming threatened and endangered over time.]

(c) **Species has designated critical habitat, but it does not overlap the action area** (FWS 2024-TN10697).

DPS = distinct population segment

[How could this possibly be — the site is only 432 acres in size. It would seem that any critical habitat for an endangered or threatened species, or species of special concern, on such a tiny site, could not help but be impacted by PNP activities. This is not only true of the “zombie” reactor restart scheme, and a quarter-century of operations there, but also at the two SMR-300 new build construction sites, to be followed by many decades of operations there as well.]

(d) Species has proposed critical habitat, but it does not overlap the action area (FWS 2024-TN10697).

[Ditto what we just said immediately above. Don't karner blue butterflies and piping plovers have wings, and fly around? So it's their own fault if they leave their postage stamp-sized remnants of remaining critically endangered habitat, and are themselves injured or killed by PNP operations?]

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In the N&S Report, Holtec presented a list of Federal and State-listed species that occur in Van Buren and Berrien Counties (Holtec 2023-TN10538).

[Why not extend the scope out to at least 50 miles. For example, NRC Chairman Greg Jaczko urged Americans in Japan to get at least 50 miles away from Fukushima Daiichi, as the nuclear catastrophe began. The Chornobyl and Fukushima Dead Zones extend some tens of miles in the northwest direction, given that radioactive fallout contamination was especially bad there. Dr. Timothy Mousseau has studied the biological impacts, at both Chornobyl and Fukushima, in these radioactively contaminated Dead Zones. Also, other analyses cited in this EA involved nearly a ten-county expanse. Why are only two counties being considered here?]

Because Michigan Department of Natural Resources Director's Order No. FO-224.21 (MNRC/MDNR 2021-TN10703) provides specific protections for amphibians and reptiles, Appendix J, Section J.1, Table J-2 presents habitat requirements for amphibians and reptiles listed as threatened and endangered that have not been seen since 2000, as well as those that are listed as species of Special Concern.

[But the NRC and DOE had just said above:

The ESA of the State of Michigan (Michigan Compiled Law Part 365-TN10704) specifies the State's responsibility for conserving, protecting, restoring, and propagating endangered and threatened species. [Emphasis added.]

So once Palisades has extirpated species on site, there is no need for Holtec nor NRC/DOE to worry about it any longer, even though the habitat could and should be restored, which could then see those species return from further afield elsewhere? This is illogical and cynical. It certainly violates common sense, as well as the spirit and even letter of the ESA. Is the ESA of the State of Michigan a dead letter law, then?]

Two State-listed species have been observed at the Palisades site: the endangered prairie vole and the threatened eastern box turtle (HDI 2024-TN10670: RAI-GEN-3, Attachment 2).

[Then why doesn't that put a stop to the PNP reactor restart and SMR new build schemes? Is the ESA just a jay walking statute? Tragically, there is a mass extinction underway worldwide, across this country, and even in the State of Michigan. This should not be allowed to happen on-site at PNP, which had long been planned to be retired by now. The PNP should be retired as long planned, the facilities dismantled, the radioactive contamination cleaned up, the radioactive waste managed safely and securely, and the natural ecosystems allowed to heal, as

best they can, after decades of nearly 60 years of physical, chemical, thermal, and even radioactive abuse.]

Eagles and Migratory Birds

The 2006 SEIS (Section 2.2.6, incorporated by reference) stated that 113 bird species have been documented on the site. According to the FWS IPAC report, accessed May 21, 2024 (FWS 2024-TN10697), 21 Birds of Conservation Concern have to the potential to occur on site. Birds of Conservation Concern are bird species not designated as federally threatened or endangered that are of the highest conservation priority for the FWS. In addition, breeding bald eagles have the potential to occur on site (breeding period December 1–August 31), as do non-breeding golden eagles (FWS 2024-TN10697). Additional information on eagles and migratory birds is provided in Appendix J, Section J.2

[Again, as just above, why does this not lead to a permanent STOP WORK order on the PNP reactor restart and SMR new build schemes? Doesn't the species that serves as our national symbol deserve protected habitat, as as the PNP site, which should have long ago been retired, decommissioned, cleaned up, and allowed to heal and serve as habitat again?]

3.6.2 Environmental Impacts from the Preparations for Resumption of Power Operations

Preparations for resumption of power operations would occur over an anticipated **18-month period.** **[Emphasis added.]**

[That IS a very aggressive schedule! What's the rush? Don't mistakes get made when things are rushed? As columnist Tom Henry's headline read in the Toledo Blade on January 14, 2025, "NRC reminds Holtec it's not beholden to the company's schedule for Palisades restart." The context was steam generator tube degradation, which was self-inflicted by Holtec, because it did not implement wet lay up for two long years, despite repeated warnings by our environmental coalition's expert witness, chief engineer Arnie Gundersen of Fairewinds, that they should do so, that they should have done so from the get-go. NRC should stand strong and not buckle to Holtec's pressure to hurry things up. But this rushed and shallow EA/FONSI is not a good sign that NRC is resisting the pressure, and insisting on doing things right, such as an EIS/PEIS with adequate time allowed for public comment. We make that request yet again here.]

The applicant proposes specific preparation activities to prepare for resumption of operation (HDI 2024-TN10670: RAI-GEN-1). The NRC staff reviewed these activities and associated shapefiles provided by the applicant and conducted an independent analysis of the terrestrial habitats to be disturbed. The activities would disturb approximately 11 ac (4.5 ha) of sparsely vegetated land outside of existing built areas (HDI 2024-TN10670: RAI-GEN-1) (Table 3-1 of this EA). Preparation activities, including those in sparsely vegetated areas, are proposed only within areas of previously disturbed soils, mostly inside existing facilities and structures. Disturbance of a few small or narrow vegetated areas would be necessary to install new cables to the cooling towers, a security fence upgrade, and widening an access road along the southern edge of the secure area. The applicant would have to obtain relevant permits for work within CDAs and Lake Michigan waters and shorelines from Michigan EGLE and U.S. Army Corps of Engineers.

[This focus on “zombie” reactor restart of course is largely to entirely blind to the major construction — and eco-destruction — impacts associated with building the closely connected two SMR-300 new builds, and operating them for many decades into the future. Segmentation like this is not allowed under NEPA law and court ruling precedents.]

The applicant would continue routine application of commercial herbicides and other pesticides as necessary to maintain the grounds. Use would be limited to ground-based application in accordance with herbicide labels at labeled rates by certified applicators, as described in nonradiological reports from 2019 to 2023 (Entergy 2020-TN10708, Entergy 2021-TN10707, Entergy 2022-TN10709; HDI 2023-TN10705, HDI 2024-TN10706). Approximately 34.5 ac (14.0 ha) of the proposed land disturbance footprint would fall within mapped CDAs. However, all of this land disturbance would take place in existing developed areas or previously disturbed lands, and all Michigan EGLE permits required for work in the CDAs would be obtained. These permits would likely require restoration of indigenous dune vegetation to any areas of disturbed dunes. Associated preparation activities (Table 3-1 of this EA) within mapped CDAs include intake pipe and crib, cable trays to cooling towers, buried pipeline repair area, security fence upgrade, access drive, and the radiological waste location within the secure area.

[Herbicides and pesticides to be further used in Critical Dune Areas with fragile habitat for rare, endangered, threatened, and special concern species? No wonder flora and fauna have gone extinct onsite and nearby since PNP groundbreaking in 1967.]

The NRC staff concludes that preparations for the resumption of power operations would be NOT SIGNIFICANT on terrestrial resources because: (1) the area likely to be disturbed, approximately 11 ac (4.5 ha), lies completely within already developed or previously disturbed parts of the Palisades site; (2) these activities are unlikely to alter patterns of wildlife use and migration across the site; and (3) required permit conditions and BMPs from Federal, State, and local agencies will minimize impacts to terrestrial resources. As noted in its biological evaluation in Appendix J, Section J.7, Table J-5, the NRC staff has determined that impacts to federally listed terrestrial species (Table 3-5 of this EA) would be “no effect” or “may affect, not likely to adversely affect.”

[Reading between the lines, NRC and DOE’s attitude seems to be, we have already allowed the PNP site to be trashed since 1967; we are fine with it continuing to be trashed till 2051 or beyond (restart), and till 2110 or beyond (2030 + 80 years of operations at the SMRs. This bad attitude means the PNP will not even begin to be restored for another century or even longer.]

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The NRC staff analyzed in detail below three terrestrial resource issues that were not analyzed previously or could be different from current conditions: **(1) exposure of terrestrial organisms to radionuclides (not analyzed in 2006 SEIS), (2) non-cooling system impacts on terrestrial resources (not analyzed in 2006 SEIS, potentially different from non-operating conditions), and (3) cooling tower impacts on terrestrial plants (potentially different from current non-operating conditions). [Emphases added.]**

[WHY were they not considered in 2006? So the 2006 SEIS was incomplete, woefully inadequate. The 20-year license extension should be invalidated based on such self-admitted fatal flaws in NRC's 2006 SEIS.]

Exposure of Terrestrial Organisms to Radionuclides

The 2006 SEIS for Palisades (NRC 2006-TN7346) did not address exposure of terrestrial organisms to radionuclides because the 1996 LR GEIS (NRC 1996-TN288) did not include this issue from routine operations as an issue to analyze.

[so the 1996 GEIS should also be invalidated. That's a lot of license extensions nullified!]

Palisades REMP has been ongoing since 1971 and is described in the 2006 SEIS (NRC 2006-TN7346). The NRC staff reviewed Holtec's analysis of this issue (Holtec 2023-TN10538) and reviewed Palisades Annual Radiological Environmental Operating Reports from 2019 to 2023 (Entergy 2020-TN10687, Entergy 2021-TN10686, Entergy 2022-TN10685; HDI 2023-TN10684, HDI 2024-TN10771). No measurable levels of radiation above baseline levels attributable to operations of Palisades were found through routine monitoring conducted in the Palisades vicinity from 2019 to 2022. Additionally, no measurable levels of radiation above baseline levels were detected during 2023 monitoring when the reactor was in decommissioning status. The NRC staff has concluded that exposure to radionuclides on terrestrial organisms would be NOT SIGNIFICANT.

[So all the radiation releases admitted to in the annual emissions reports simply, and magically, disappeared into nothingness? No flora, fauna, fungi, nor humans were harmed? All the cancer in humans locally must have been caused by something else? All extirpations of species on the Palisades site must have been caused some other way? This is magical thinking, which is dangerous.]

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The NRC staff has concluded that ***non-system cooling impacts*** on terrestrial resources would be NOT SIGNIFICANT. ***[Emphasis added.]***

[The words are out of order. It should read non-cooling system impacts.]

Cooling Tower Impacts on Terrestrial Plants

As summarized in meteorology and air quality (Section 3.3.1 of this EA) and detailed in Rochow 1978-TN10666, Palisades' initial cooling tower operations resulted in loss of forest vegetation, severe icing, and signs of chemically induced vegetation injury associated with sulfate deposition from the towers. Most vegetation damage occurred within 160 ft (50 m) of the towers, with trees and shrubs affected. As detailed in the 1996 LR GEIS (NRC 1996-TN288: Section 4.3.5.1), woody species damage resulted from ***the unique Palisades topography***, unusual operating and weather conditions, and use of sulfuric acid as a biocide (which was

discontinued before the 2006 SEIS). Rochow 1978-TN10666 reported the tower drift design rate at the time of damage to be between 0.005 and 0.2 percent. The 2006 SEIS (NRC 2006-TN7346: pp. 4-10 through 4-11) rated the impacts of Palisades cooling tower operations on vegetation (crops, ornamental vegetation, and native plants) as SMALL. Both rows of cooling towers were replaced, in 2012 and 2017, respectively, within the same footprint (Holtec 2023-TN10538; Google Earth 2024-TN10690). The replacement towers have drift eliminators that have a guaranteed drift rate of not to exceed 0.001 percent of the circulating water flow rate (HDI 2024-TN10670: RAI-TE-1).

[This severe damage was to Critical Dune Areas and their fragile ecosystems and habitats, including for threatened and endangered species, as well as species of special concern, pushing them closure to extirpation, at least on the PNP site, contributing to their ultimate extinction. Why is this not taken seriously as a cumulative effect and major impact by NRC and DOE in this EA?

PNP DOES have unique topography, and ecology. It deserves protection under law and regulation, not further neglect and abuse.]

Field surveys of potentially suitable dune habitat conducted by Holtec in 2024 identified the only Pitcher's thistle location onsite as occurring in a forest clearing situated approximately 1,000 ft (300 m) east (inland) of the cooling towers (HDI 2024-TN10670: RAI-SE-1). No information is available to NRC staff on the sensitivity of Pitcher's thistle to cooling tower drift. Considering the physical stresses inherent in surviving in dune habitat, it is possible that cooling tower drift could contribute cumulatively to adverse effects on a Pitcher's thistle population. However, because the mechanical draft cooling towers are equipped with drift eliminators and are separated from the Pitcher's thistle population by approximately 1,000 ft (300 m) of deciduous forest vegetation, it is reasonable to expect that noticeable drift is unlikely to reach the population. If substantially potent drift were to reach the Pitcher's thistle populations onsite, the effects would likely be first visible on deciduous tree foliage at the edge of the cooling towers, giving nuclear power plant managers time to take corrective action. The NRC staff conclude that cooling tower impacts to Pitcher's thistle to be "may affect, not likely to adversely affect."

[Well, those nuclear power plant managers would have to care, and to notice — these are very big if's. NRC has admitted it has no information on the impacts of cooling tower drift, and its negative impacts on an endangered species. NRC's incurious, lazy lack of interest in tracking down this information is unacceptable. This is why we demand an EIS/PEIS, so that such critical issues as endangered species protection is given the "hard look" required under NEPA law and court precedent.]

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The NRC staff conclude that resumption of cooling tower operations would be less than those determined to be SMALL in 2006. This is based on: the changes in cooling tower operations from the initial conditions that led to vegetation damage; the replacement of both towers within the last 12 years; replacement tower drift rate of 0.001 percent; and a determination of "may affect, not likely to adversely affect" for Pitcher's thistle for cooling tower operations. Therefore, the NRC staff concludes that the impact from resumption of cooling tower operations would be

NOT SIGNIFICANT.

[What about the “minor modifications” the Holtec spokesman admitted to at the NRC meeting on 3/20/23? They are not even mentioned here. The left hand doesn’t seem to know what the right hand is doing at the NRC.]

3.6.4 Cumulative Effects

Appendix G, Table G-1 of this EA identifies past, present, and reasonably foreseeable projects that could cumulatively contribute to the environmental effects of the proposed Federal actions. The projects in the vicinity of Palisades that may affect terrestrial ecology include future onsite construction (a new spent fuel pad and new SMRs); potential SLR of Palisades; continued operation of energy generation facilities; construction, upgrade, and rebuilding of power transmission infrastructure; continued operation of existing mines; residential, commercial, and industrial development; continued operation of water supply and wastewater treatment facilities; cleanup of contaminated sites; continued operation and upgrade of transportation infrastructure; and continued recreational activities. The general characteristics of the terrestrial habitats and ecological resources in the landscape on and surrounding the Palisades site would not be noticeably altered by the projects. The resumption of power operations would result in only small areas of terrestrial habitat disturbance situated in previously developed areas of the site. ***It is also anticipated that SMR development would mostly take place within previously developed areas of the site and affect only narrow or small areas of naturally vegetated terrestrial habitat adjoining areas of previous development, without noticeably intruding into areas of intact terrestrial habitat in relatively undeveloped areas of the site.*** Therefore, the NRC staff determined that the incremental effects of the proposed Federal actions related to terrestrial ecology when added to the effects of other past, present, and reasonably foreseeable projects would not have significant cumulative effects. ***[Emphases added.]***

[This is very hard to believe — PNP’s nuclear megawattage would be nearly DOUBLED by the addition of two SMR-300s. Besides, even “narrow” or “small” intrusions on what is left of the critical dune area habitat could mean “death by a thousand cuts” for the flora, fauna, and fungi species barely holding on at the PNP site. Not only is segmentation not allowed under NEPA law and court ruling precedents, but neither is NRC and DOE’s downplaying of clearly major, large-scale impacts — such as building two new reactors at the tiny 432 acre site — and referring to them instead as “narrow” and “small” effects.]

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3.7 Aquatic Ecology

[see Lake MI related comments I made above]

1972 FES (AEC 1972-TN10603): Section V.C.1.a., Sources of Potential Biological Damage; Table V-1, Examples of Number and Length of Fish ***Counted Daily at the Intake Screens*** from January 23, 1972 - February 22, 1972; Appendix V-2, Outline Map of North America Showing the Southern Limit of Distribution of Lake Whitefish. ***[Emphasis added.]***

[By counted, NRC and DOE euphemistically mean injured or killed, right? How many indigenous fish and other aquatic organisms has Palisades injured and/or killed since construction began in 1967, and operations began in 1971? We incorporate by reference, and as if fully rewritten herein, the “Licensed To Kill” report, linked here, authored by Paul Gunter and Linda Pentz Gunter, now on staff at Beyond Nuclear:

https://static1.1.sqspcdn.com/static/f/356082/3590840/1247621149403/ltk_full.pdf?token=jLbCMPcAlAkJlgxCibq0%2F3Hy%2Ftw%3D

The comments in this report, such as regarding the major impacts on aquatic ecosystems from nuclear power plants’ thermal wastewater and toxic chemical wastewater and radioactive wastewater discharges into adjacent surface waters, as well as organism kills by entrainment and entrapment, should be treated as environmental coalition comments on this EA.]

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3.7.1.1 Site and Vicinity

Palisades is located along the southeastern shore of Lake Michigan’s main basin, which provides the source and receiving body for the plant’s cooling-water system. Lake Michigan’s main basin, which is separated into a northern and southern basin, contains cold, clear, nutrient-poor (oligotrophic) water with water depths ranging from 50 ft (15 m) at 1 mi (1.6 km) offshore, to a maximum depth of 923 ft (281 m), and average depths of 279 ft (85 m) (Michigan Sea Grant 2024-TN10710).

[These depths are truly awe inspiring to contemplate. But they are also frightening, given Holtec’s embrace — in its December 2020 PSDAR — of a DOE scheme, under the Yucca Mountain Project, to barge highly radioactive wastes on the surface waters of Lake Michigan. Do the routes — between PNP and the Port of Muskegon, not to mention from the Wisconsin atomic reactors to the Port of Milwaukee — pass over such depths? Or what if, due to extreme weather, terrorist attack, or some other mishaps, such barge shipments veer off course, over such depths.

A Public Citizen fact sheet entitled “Everyone Knows That Accidents Happen: Nuclear Waste Transport Casks,” includes information about NRC’s design criteria meant to withstand underwater submersions.

One design criteria is that a cask that has undergone the puncture test (a free fall, from a height of just 40 inches, onto a 8 inch long spike) must withstand submersion under three feet of water. Of course, Lake Michigan reaches depths of three feet, just offshore from PNP.

A second design criteria is that an undamaged cask must withstand submersion under 200 meters (656 feet) of water for one hour.

But depths reported by DOE and NRC above include a maximum of 923 feet (281 meters), much deeper than the NRC design criteria.

These minimalistic NRC design criteria beg many questions.

As Public Citizen has pointed out, “A damaged cask submerged in water deeper than three feet could contaminate water supplies.”

Lake Michigan is the source of drinking water for 16 million people in four U.S. states. It is also a major headwaters for Great Lakes downstream — the source of drinking water for 40+ million people in 8 U.S. states, 2 Canadian provinces, and a large number of Indigenous Nations.

Public Citizen also pointed out that “Casks can weigh as much as 125 tons and would be extremely difficult to rescue in one hour, especially in remote areas.”

Actually, in the quarter-century since this Public Citizen fact sheet was published, cask weights have increased significantly. Back then, the largest transport casks could hold up to 24 Pressurized Water Reactor irradiated nuclear fuel assemblies. Holtec’s current UMAX cask design can hold up to 37 PWR assemblies, around a 50% increase in size, weight, and radioactive source term contents.

Public Citizen also pointed out that “Water pressure over long periods of time could cause radiation to be released.”

Public Citizen’s fact sheet, at the following link, is incorporated by reference as if fully rewritten herein:

<http://beyondnuclear.org/wp-content/uploads/2025/02/Screen-Shot-2017-10-09-at-12.59.27-PM.pdf>

A related NIRS fact sheet, at the following link, is also incorporated by reference as if fully rewritten herein:

<https://www.nirs.org/wp-content/uploads/factsheets/mibargefactsheet92804.pdf>

It further describes the risks associated with a barge shipment of highly radioactive waste sinking in Lake Michigan.

In 2002, 453 barge shipments of high-level radioactive waste on Lake Michigan had been predicted by DOE, including 125 from PNP alone. But now DOE and NRC are poised to approve and enable restart of the closed for good PNP reactor. This will result in around 15 metric tons of additional irradiated nuclear fuel generation, annually, for a quarter-century into the future.

The two SMR-300s would generate yet more highly radioactive waste. Allison Macfarlane and Rod Ewing, President Obama’s NRC and U.S. Nuclear Waste Technical Review Board chairs, respectively, published a study a couple years ago, calculating that, depending on the particular design, SMRs will generate 2 to 30 times more highly radioactive waste, per unit of electricity generated, as do the current generation of reactors.

Instead of 125 barge shipments from PNP alone, the number will be significantly higher, given all this newly proposed irradiated nuclear fuel generation at the site.

NRC has also approved a 60-year license at Point Beach, Wisconsin. Point Beach Units 1 and 2 have now applied for an 80-year license. This is 30 years more waste generation than DOE assumed in its 2002 Yucca Mountain FEIS. Thus, the number of barge shipments of highly radioactive waste originating at Point Beach will also be much larger.

Although Kewaunee shut for good in 2013, its new owner, EnergySolutions, instead of decommissioning it, has now proposed building and operating one or more SMRs there. So the number of barge shipments originating at Kewaunee will also be larger than DOE predicted in 2002.

DOE has contracted with PNNL to study additional barging options on the Great Lakes, besides those already mentioned above. This could include Big Rock Point in MI, Zion in IL, Cook in MI, and other reactors on other Great Lakes.

Why was none of this analyzed in this EA? Rather than NEPA's "hard look," DOE and NRC have done "hardly a look." This is why an EIS/PEIS is needed.

By the way, it was objectionable that a Holtec spokesman, in 2002 we think it was, denied that Holtec had embraced this barge shipping plan. He tried to say it was DOE's plan, not Holtec's. But Holtec had included it in its own PSDAR, dated Dec. 2020. When he continued to deny Holtec had anything to do with it, the questioner — Bette Pierman of Michigan Safe Energy Future-Shoreline Chapter — held up the Holtec PSDAR, and provided him the page number. Did the Holtec spokesman not even know what was in the PSDAR? Or was he lying? Either way, it was unacceptable behavior, but we have come to expect such behavior from Holtec. This took place at a meeting of the Palisades Nuclear Decommissioning Community Advisory Panel in South Haven (NDCAP).]

Water moves slowly along the southeastern side of the lake in a generally northern direction toward the Strait of Mackinac to Lake Huron (Michigan Sea Grant 2024-TN10710; NOAA Undated-TN10711).

[Well then, DOE and NRC's and Holtec's "dilution is the solution to radioactive pollution" approach is suspect — slow motion means slow dilution — persistent concentration — this could help explain Joe Mangano's mid-1990s EPA data point citation, for tritium concentration measurements off South Haven, in open Lake Michigan surface water, of 2,500 pCi/L, mentioned above. Dr. Rosalie Bertell, founder of International Institute of Concern for Public Health (IICPH), warned decades ago that "dilution is NOT the solution to radioactive pollution!" She served on the International Joint Commission's (IJC) Nuclear Task Force, which published reports on the levels of artificial radioactive contaminants in the Great Lakes, as well as their bioaccumulation in living organisms, such as fisheries, and thus the food chain. She was the author of NO IMMEDIATE DANGER: PROGNOSIS FOR A RADIOACTIVE EARTH (Women's Press, 1985. In it, she recounted the story of Dr. Gerald Drake, a general practitioner in Charlevoix, MI, and his wife, Martha Drake, a U of M trained statistician. They did a study that found statistically significant spina bifida in their area. They were prompted to undertake the study, because Dr. Drake saw so many cases of spina bifida at his clinic, that he was alarmed by it. Charlevoix is a rural area with little to no industry. But four miles away is Big Rock Point, Palisades' sibling reactor. There is also widespread concern about thyroid pathology in the area. We incorporated by reference, as if fully written herein, several press statements, a

backgrounder, and a letter to Hayes Township, regarding Big Rock Point, above. The backgrounder documents that more than 3 million Curies of radioactivity were discharged by Big Rock Point, a relatively small atomic reactor of just 67 MW-e in size. This was due to such disasters as the breaking of experimental mixed oxide plutonium fuel rods in the core, resulting in large-scale releases of Iodine-131. I-131 is a cause of thyroid cancer and other pathologies, as shown downwind, downstream, and up the food chain at/near Chornobyl, as well as Fukushima Daiichi. It has also been seen at Hanford Nuclear Reservation in Washington State, after ghoulish human radiation experiments were carried out, known as the “Green Run,” as revealed by President Clinton’s Energy Secretary Hazel O’Leary. And, it appears, I-131 releases at Big Rock Point have caused thyroid pathology there as well, although no scientific studies have been undertaken to investigate, to the best of our knowledge. NRC itself had proposed doing one, but abandoned the project. It was a cancer incidence study, that would have cost \$8 million. Not only Big Rock Point, but a number of other reactors, and even uranium fuel chain facilities, had been listed as case studies. But NRC decided it all cost too much, and abruptly canceled the study. At the same time, NRC built a third HQ building in Rockville, MD, at a cost of more than \$300 million. It was to house staff reviewing license applications for gigantic new reactors, during the Bush/Cheney nuclear power relapse of the first decade of this century. Thankfully, almost all of those proposed new reactors were canceled. NRC had no use for its very expensive new HQ, so least office space out to others. But it showed how little NRC cares about or values the truth regarding human health impacts near nuclear power plants like Palisades, and Big Rock Point, and all the others across the country. But NRC does care about rubberstamping reactor license applications, as we are seeing yet again now in this very proceeding. NRC is completely captured by the industry it is supposed to regulate. The Japanese Parliament concluded that such collusion, between safety regulatory agency, nuclear industry company, and other government officials, was the root cause of the Fukushima Daiichi catastrophe. Such collusion exists in spades at Palisades, between NRC, Holtec, and elected and appointed government officials at the federal and state and local levels. And thus, we live in peril near Palisades, and out to great distances actually, downwind, downstream, up the good chain, and down the generations.]

3.7.1.1 Site and Vicinity

Palisades is located along the southeastern shore of Lake Michigan’s main basin, which provides the source and receiving body for the plant’s cooling-water system. Lake Michigan’s main basin, which is separated into a northern and southern basin, contains cold, clear, nutrient-poor (oligotrophic) water with water depths ranging from 50 ft (15 m) at 1 mi (1.6 km) offshore, to a maximum depth of 923 ft (281 m), and average depths of 279 ft (85 m) (Michigan Sea Grant 2024-TN10710). Water moves slowly along the southeastern side of the lake in a generally northern direction toward the Strait of Mackinac to Lake Huron (Michigan Sea Grant 2024-TN10710; NOAA Undated-TN10711). Surface water temperatures in Lake Michigan vary from a low of 36.9°F (2.7°C) in February to a high of 70.5°F (21.4°C) in August (NOAA 2024-TN10714). A 2021 study by NOAA revealed a warming trend in surface water temperatures based on a single location, which was hypothesized to be due to climate change (Anderson et al. 2021-TN10715). Using a 30-year dataset, NOAA found that the winter cooling season in the deep waters of the lake is shortening (less than 100 days) and the summer warming season is lengthening (greater than 200 days) which could lead to permanent changes in the lake’s seasonal mixing patterns and disrupt the food web (Anderson et al. 2021-TN10715). The aquatic biological communities of Lake Michigan, including plankton, macrophytes, benthic invertebrates, and fish, are described in detail in Appendix J, Section J.4 to this EA.

[See Arnie Gundersen's expert witness declaration testimony re: the Component Cooling Water heat exchanger "upgrade," and its relationship — or not — with the cooling towers, and increasing Lake Michigan surface water temperatures due to global warming and climate change, above.]

3.7.1.2 Important Species and Habitats

[What species and habitats are NOT important?! What a bad attitude this subject header reveals about DOE and NRC! Of course ALL species and habitats are important! Such a bad attitude begins to explain the Anthropocene mass extinction underway globally, the first mass extinction in some 65 million years — and that one was due to a giant asteroid that collided with Earth, extirpating the dinosaurs. This mass extinction is caused by human activities. PNP has wreaked havoc on its fragile, rare, formerly biologically diverse host site's habitat, since 1967.]

3.7.1.2 Important Species and Habitats

The Michigan Department of Natural Resources (MDNR) is responsible for fisheries management in Lake Michigan and co-manages some commercial and recreational fisheries from approximately Grand Haven, Michigan northward with Indian Tribes. The co-managed fishing areas end approximately 50 mi (80 km) north of Palisades and are not discussed further (MDNR 2024-TN10762). The aquatic region of the action area (as defined above in Section 3.6.1.2) encompasses the area of Lake Michigan influenced by the intake and discharge systems. These systems are described in the 2006 SEIS (NRC 2006-TN7346). There are no federally protected aquatic species, essential fish habitat, or national marine sanctuaries located within action area (FWS 2024-TN10697; NMFS 2024-TN10304; NOAA Undated-TN10727). Additional information can be found in Appendix J, Sections J.4 and J.5 of this EA.

[This doesn't make sense. Grand Haven IS 50 miles north of Palisades. Reading this makes Lake Michigan sound like the paragon of health. But it is not. NRC and DOE seem to be whitewashing and greenwashing serious problems in Lake Michigan. And oh by the way, even routine operations at PNP are harmful — see Kay Drey's "routine operational releases of hazardous radioactivity," above — let alone a catastrophe.]

And shouldn't the federal government be more than flippantly dismissive to the point of ignoring them completely, as appears to be the case in this NRC and DOE EA, about Indigenous treaty rights, such as to fisheries?! Treaties the highest law of the land, equal in stature to the constitution itself. And yet NRC and DOE disregard the dire condition of various Lake Michigan and Great Lakes fisheries. How is this not a violation of treaty rights, above and below? Not only individual U.S. citizens, but also certainly federal agencies like NRC and DOE, are duty bound to honor treaties with Indigenous Nations, including fishing rights, which of course begin with fisheries being protected against such impacts and risks as those coming from PNP.]

Commercially Important Fisheries

The only commercially fished species in Lake Michigan since 2022 is the lake whitefish (*Coregonus clupeaformis*) although over the last five years small amounts of burbot (*Lota lota*),

chub (*Squalius cephalus*), round whitefish (*Prosopium cylindraceum*), smelt (*Osmeridae*), and sucker (*Catostomidae*) were also commercially harvested (MDNR 2024-TN10728; Michigan Sea Grant 2024-TN10729). Lake whitefish is a benthic cool water fish that primarily feeds on zooplankton and *Diporeia* (Michigan Sea Grant 2024-TN10730). Whitefish spawn in early winter in shallow rocky or sandy bottom lake waters less than 25 ft (7.6 m) deep, the young hatch in the spring and leave for deeper and cooler waters by early summer where they live in schools at

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depths of up to 200 ft (61 m) (MDNR 2024-TN10731). The lake whitefish population has declined rapidly in Lake Michigan over the past 15–20 years, with slow growth and poor body condition that correlates with the loss of their primary food source, *Diporeia*, to invasive *Dreissena* mussels (MEGLE 2022-TN10732). Since the early 2000s, whitefish populations have also experienced poor recruitment, the process of young fish making it to the adult stage, which is thought to be a result of changes in water temperature, water levels, currents, and ice cover due to changing climate conditions (MEGLE 2022-TN10732).

[So, all is NOT well with Lake Michigan's aquatic ecology! PNP contributes to the harm!]

Recreationally Important Fisheries

Recreational fisheries in the Michigan portion of Lake Michigan are also regulated by MDNR. Popular sport fish include yellow perch (*Perca flavescens*), walleye (*Sander vitreus*), largemouth (*Micropterus salmoides*) and smallmouth bass (*Micropterus dolomieu*), sunfish (*Centrarchidae*), crappie (*Pomoxis* spp.), rock bass (*Ambloplites rupestris*), lake trout (*Salvelinus namaycush*), and salmon (chinook, coho, steelhead; *Oncorhynchus* spp.). Lake trout is an important species that contributes to a multimillion-dollar Lake Michigan sport fishery. The Michigan United Conservation Clubs reported in 2019 that recreational fishing in Michigan, not just in Lake Michigan, generates \$2.3 billion in economic activity (MUCC 2019-TN10733).

[This is all put at risk by PNP. There has been no mention above about the “dinosaur fish” — Lake Michigan and Great Lakes sturgeon — which is important, and even sacred, to Indigenous Nations, such as the Anishinaabe. Odawa traditional storyteller, pow wow emcee, and elder, Larry “Pun” Plamondon (Two Hawks), may he rest in peace, spoke about how the sturgeon was to the Anishinaabe, like the buffalo was to the Lakota, in terms of cultural importance. And yet NRC and DOE do not even mention sturgeon in this EA. It's another reason an EIS/PEIS should be required. This EA is clearly woefully inadequate.]

By the way, as this EA itself pointed out, recreational fishing associations were a part of the coalition that successfully demanded that cooling towers be installed at PNP in the early 1970s, a huge environmental victory for Lake Michigan's freshwater aquatic ecology. But unfortunately, Cook Units 1 and 2 in MI, and Point Beach Units 1 and 2 in WI — still operating, since the early to mid 1970s, with no end of operations in sight — have no cooling towers whatsoever. All the thermal waste heat is discharged into Lake Michigan via wastewater discharges. Each of those four reactors is more than 1,000 MW-e. This is a tremendous negative impact on Lake Michigan. It has even led to major fish kills at Cook, during inadvertent winter time shut downs. The physiology of numerous fish species cannot adjust quickly enough when the hot water discharges suddenly stop. The thermal shock kills the fish. In one such incident at Cook, in the early 2000s, 500,000 fish were killed in a single incident, according to an NRC Incident Report.

Such cumulative impacts and effects should have been included in this EA, but have not been. An EIS/PEIS should be required.]

A small number of these have had negative impacts to the ecosystem and fisheries including sea lamprey (*Petromyzon marinus*), alewife (*Alosa pseudoharengus*), zebra mussels (*Dreissena polymorpha*) and quagga mussels (*Dreissena rostriformis bugensis*), round goby (*Apollonia melanostomus*), and the spiny waterflea (*Bythotrephes longimanus*) (GLFC 2024-TN10736). Invasive species of concern in Michigan include Asian clam (*Corbicula fluminea*), grass carp (*Ctenopharyngodon idella*), Eurasian ruffe (*Gymnocephalus cernuus*), hydrilla (*Hydrilla verticillata*), Japanese/Oriental weatherfish (*Misgurnus anguillicaudatus*), New Zealand

[There has been no mention of Asian Carp, at least not by that name, in this EA, despite Asian Carp having been a major, evening leading, invasive species concern in Lake Michigan and throughout the Great Lakes, for decades. It would seem, given the white fish section above, that some invasive species have had MAJOR impacts!]

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The primary invasive species of concern related to Palisades operations is biofouling of the cooling-water intake system by invasive bivalves, such as zebra mussels and quagga mussels. The spring 2024 intake crib inspection and cleaning reported 100 percent coverage of the bars along the sides of the intake crib by zebra mussels roughly 1.5 in. (3.8 cm) thick (HDI 2024-TN10843: RCI-AE-4a). Divers also found and cleaned out debris, including zebra mussels, just west of the traveling screens. These invasive mussels are controlled using biocides and cleaned out of the intake by divers annually; biocide use is regulated by Michigan EGLE as part of the discharge authorizations in permit no. MI0001457 under Section A, Part I (MDEQ 2014-TN10665).

[PNP use of biocides is a major ecological harm and impact. And what about PNP contributing to invasive species — such as its thermal wastewater driving away native species, and attracting invasives? Why is there no mention of this dynamic in the EA?

Speaking of biocides, was the frothing white-ish wastewater flush discharged into Lake Michigan in the spring of 2017, or summer/fall of 2016, biocides, or some other substance? A Palisades Park Country Club resident spoke about it during her public comment testimony at a Michigan Public Service Commission public meeting held at the Van Buren Conference Center, in Lawrence, MI on May 8, 2017, about Palisades. Here is the link to a Beyond Nuclear press release and action alert about, and summary report back from that meeting:

<https://archive.beyondnuclear.org/nuclear-subsidies/2017/5/8/beyond-nuclear-media-statement-re-mpsc-public-comment-mtgs-a.html>

The PPCC resident, a grandmother, was watching her young grandchildren swim and play in Lake Michigan, just offshore from PPCC. All of sudden, this frothing flush was released from PNP. She did not what it was, and feared it was dangerous. She yelled and screamed for her grandchildren to get out of the Lake, before the frothing flush overtook them, but they could do so fast enough. She did not know what that frothing flush was, and still feared it may have

harmed her grandchildren's health. It certainly traumatized her, and her grandchildren. Why are such traumatic impacts as this woman and her grandchildren suffered not mentioned in this EA? They should be addressed in an EIS/PEIS.

For that matter, why does NRC have no regulatory requirements that batch releases of radioactive wastewater, toxic chemical wastewater, and biocide wastewater, discharged into Lake Michigan from PNP, do not involve a clear warning to swimmers, boaters, fishers, and other beachgoers in Lake Michigan, about what is about to happen? Especially in the summertime, the beach at Van Buren State Park to the immediate north of PNP, and the beach at PPCC to the immediate south of PNP, can be filled with many hundreds of people, including children. The Lake just offshore from PNP can be filled with dozens or more of boats. Many boats and people are drawn to PNP's discharge pathway into the Lake, because of the thermal discharge, the warm water. So when the hazardous seasonal batch release takes place, in the summer especially, depending on what day and time it takes place, many hundreds of people could be impacted directly. No LIES, DAMN LIES, AND STATISTICS — this would be a direct exposure to concentrated radioactivity, toxic chemicals, and biocides.

This appears to be what may have happened to the PPCC grandmother and her grandchildren, reported above.

How can NRC have no regulations about when such batch releases take place? And no regulations about warnings to those who could be harmed and traumatized by it? Is PNP's owner/operator supposed to voluntarily take precautions before batch releasing radioactive, toxic chemical, and biocide wastewater into the Lake, when it is occupied by hundreds of swimmers and boaters on a Saturday in July or August, for example? Because it appears that Entergy took no such precautions in 2016 or 2017, according to the traumatized PPCC grandmother above. Such occurrences are unacceptable. Of course, the discharge of hazardous substances into Lake Michigan from PNP should not be allowed. The State of MI EGLE, NRC, and other local, state, and federal agencies should no longer allow it. PNP should be retired, as long planned. No restart, no SMR new builds, should be allowed, nor subsidized with public money from ratepayers and taxpayers.]

The NRC staff concludes that, based on the current SWPPP, the existing stormwater system, and the small area of potential surface disturbance or new impervious surfaces, the impacts to onsite streams from the proposed activities would be minimal.

[What about new construction just from restart preparations, and restarted operations, such as the new pad for dry cask storage? And what about the SMR new builds' construction?! This appears to be illegal segmentation, not allowed by NEPA law and court ruling precedents.]

Holtec plans no changes to the water intake system from Lake Michigan, relative to the previously operating plant.

[This could be a false or misleading statement. Arnie Gundersen, above, has questioned the logic of Holtec's approach — the CCW heat exchangers being doubled in size — instead of adding more cooling towers, to deal with Lake Michigan's surface waters increasing in temperature due to global warming. The water intake system is connected to the CCW heat exchangers and cooling towers. Doubling the CCW heat exchangers in size and capacity means

that the intake flow could be as much as doubled. While the physical structure of the water intake system may not change, per se, the flow rate could be doubled. This is a significant change. It would mean double the water usage, double that impact on Lake Michigan. This is a significant change, that deserves to be analyzed in an EIS/PEIS, more carefully and thoroughly than done in this shallow EA.

In addition, as mentioned previously, a Holtec spokesman admitted, at an NRC meeting on 3/20/23, that “minor modifications” were made by Holtec on the mechanical draft cooling towers. We have never been able to learn what these “minor modifications” were all about, why they were done, what impact they have had or will have on PNP’s cooling water systems, etc. Why was such information not included in the EA? It’s further reason to require an EIS/PEIS.]

3.7.2.2 Important Aquatic Species and Habitats

[What Aquatic Species and Habitats AREN’T important?! They ALL ARE, of course!]

Four State-listed fish species have occurred in the vicinity of Palisades, although ***the lake herring and shortjaw cisco have not been observed in 30 years*** (Table J-4 of this EA). The starheaded topminnow and spotted gar are expected to still be in the vicinity. The spotted gar is tolerant of warm waters and low dissolved oxygen. Both species can be found in shallow waters or near the surface and both spawn in shallow water, although the gar prefers heavily vegetated areas and the topminnow prefers gravel. Because of the applicant’s efforts to control sedimentation and the offshore location of the intake, the potential for impacts to these fish species from activities at the site would be NOT SIGNIFICANT. There are also four State-listed ***[Emphasis added]***

*[The world is marching at a faster and faster pace straight into a mass extinction event, the likes of which have not been seen on the planet in 66 million years. This is even taking place locally, at/near PNP, as with these species mentioned above. And yet NRC and DOE barely shrug. The risk of extinction, even in a local area (***the lake herring and shortjaw cisco have not been observed in 30 years***), is a VERY SIGNIFICANT negative development.]*

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mussels, the slippershell, creek heelsplitter, flutedshell, and round pigtoe, that may occur within the vicinity of Palisades (Table J-4 of this EA). Holtec has not identified any State-listed species in the intake or discharge systems during annual monitoring (HDI 2024-TN10843: RCI-AE-4a). Therefore, the potential for impact to State-listed mussel species is expected to be NOT SIGNIFICANT.

[No observations reported? Did Holtec even look?! One can’t observe without looking!]

3.7.3 Environmental Impacts from the Resumption of Power Operations

The impacts from resumption of operation of Palisades would be similar to those described in the 2006 SEIS (NRC 2006-TN7346), which is incorporated by reference. In Section 3.3.1 of the

N&S Report, the applicant states that no additional aquatic studies have been conducted and that the descriptions and discussions of aquatic resources in the 2006 SEIS remain valid (Holtec 2023-TN10538). The NRC staff has not identified any new and significant information during its independent review of the N&S Report (Holtec 2023-TN10538), the 2024 site visit, the scoping process for this EA, and the NRC staff's evaluation of other available information

[If no additional studies have been done, how can Holtec say with confidence — or a straight face — that the 2006 studies remain valid? How can NRC say this? Ignorance is bliss? What a mockery of NEPA's required "hard look"! This is "hardly a look" instead!]

While most of the water used for cooling would be returned to the lake, the cooling system would lose approximately 12,000 gpm or 0.0006 percent of the total volume of water in Lake Michigan to evaporation from the cooling towers each year.

[Still, water vapor that blows with the wind out of the Great Lakes basin watershed before condensing back into liquid is lost to the Great Lakes, which is a significant impact.]

Impingement and Entrainment of Aquatic Organisms

If approved and power operations resume, the resumed water intake would impinge and entrain aquatic organisms from Lake Michigan. Section 2.1 of this EA and the 2006 SEIS (NRC 2006-TN7346) describe the Palisades cooling and auxiliary water systems in detail. Smaller organisms, such as fish eggs and larvae, can be entrained and pass through the system, where they are subjected to mechanical, thermal, and toxic stresses before the water is discharged back into the lake. Impinged organisms are collected at the trash racks or traveling screens and disposed as solid waste.

[See link to "Licensed to Kill" and related commentary, above.]

Also, the Ludington, MI pumped water storage facility on the Lake Michigan shore should be included in the Cumulative Effects analyses. It has represented major, significant impacts on Lake Michigan's aquatic ecology as a Fish Killing Monster. It was built to accommodate nuclear power generation at night in Michigan, many decades ago. There was not enough demand to consume all the electricity MI's atomic reactors generated at nighttime. But the trade off for storing this nighttime generation was the very high price paid by fisheries and fish species and other aquatic organisms in Lake Michigan.]

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Cooling-water intake from Lake Michigan to Palisades are authorized under NPDES permit no. MI0001457. The current permit was issued in 2014 and is being operated under an administrative extension (MDEQ 2014-TN10665). The new draft permit was published in 2023 and a final permit is expected prior to the resumption of power operations (MEGLE 2023-TN10739). As part of the draft permit, Michigan EGLE reviewed the cooling-water intake structures (CWIS) and determined that they comply with the best technology available (BTA)

standards for impingement mortality and entrainment to minimize adverse environmental impact in accordance with 40 CFR Subpart J under Section 316(b) of the CWA. The chosen method of compliance for impingement is 40 CFR Part 125.94(c)(1) (TN254)—closed-cycle recirculating system. In addition, the Palisades CWIS is BTA as specified by operating an existing offshore velocity crib under 40 CFR Part 125.94(c)(4).

*[A MgCl plant in Tooele Valley, UT, discussed in Chip Ward's book *Canaries on the Rim*, was considered BTA — only because it was a unique facility. It may have been BTA, but it was very highly polluting. In that sense, it was also WORST Technology Available. But it nonetheless got BTA status, even as it caused major pollution in the area. So the nuclear industry could undoubtedly do better here, as well. But they've decided THIS is "good enough": "BTA". Available perhaps, but not achievable!]*

The impacts on impingement from the resumption of power operations of Palisades would be similar to those described in the 1972 FES, which analyzed impingement potential for principal fish species during interim operations of Palisades in 1972 (AEC 1972-TN10603), and which is incorporated by reference. This issue was not further analyzed in the 2006 SEIS because it was considered a Category 1 issue. For the most part, fish and free-swimming organisms would avoid impingement because the intake crib is located in the water column, about 6 ft (2 m) above the bottom, 3,300 ft (1,005 m) from the shoreline, and the intake velocity is only approximately 0.1 fps. The intake is well sited to avoid most fishes' preferred habitat and distribution in the water column, apart from rainbow smelt, alewife, and bloater. During interim operations during start-up in 1972, the primary impingement mortality was of sculpins in January and February (AEC 1972-TN10603). Enercon Services, Inc. conducted an impingement estimate in 2000, estimating the impingement of 863 fish, which included yellow perch, alewives, and spottail shiners, from July to November (Enercon/Normandeau 2018-TN10740).

The location of the intake and the low intake water velocity would help prevent any large fish from being sucked into the intake crib and then the intake pipe. Small fish and other aquatic organisms that are unable to swim against the 0.1 fps current at the intake would be drawn inside and impinged on the traveling screens and trash racks, or if small enough entrained. EPA data shows that 96 percent of studied fish can avoid an intake structure when the intake velocity is 0.5 fps or less so, hence the resulting impingement is expected to be a relatively small amount in relation to nearby populations within the lake (EPA 2014-TN10834).

[But, species death — extinction — by a thousand cuts, is still death, Extinction, whether locally or globally, by a thousand cuts, or a thousand impingements, or a thousand entrainments.]

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Thermal Impacts of Discharges

In the 2006 SEIS (NRC 2006-TN7346), the NRC staff discussed field surveys to assess the thermal plume after the MDCTs were installed, which is incorporated in the EA by reference. At its largest in the winter, the 3°F (1.67°C) isotherm encompassed approximately 286 ac (116 ha) of water surface and seldom extended below a depth of 5 ft (1.5 m) with discharge temperatures of 25 to 34°F (-3.9 to 1.1°C), **except in peak winter when they reached 44°F (6.7°C) above the ambient lake temperature** (NRC 2006-TN7346). In its current decommissioning state, Palisades is averaging a discharge temperature of approximately 2°F

(1.1°C) above ambient water temperatures (MEGLE 2024-TN10741). The NPDES permit no. MI0001457 limits the thermal discharge from Palisades to 2,100 MBtu/hr, with a daily monitoring requirement of the temperature at the intake and discharge (MDEQ 2014-TN10665; MEGLE 2023-TN10739). Based on the discharge limits of the NPDES permit, the NRC staff concludes that thermal impacts on aquatic organisms would be NOT SIGNIFICANT for the proposed preparation for the resumption of power operations. **[Emphasis added.]**

[Well, of course, 44 degrees Fahrenheit above ambient Lake Michigan surface water temperature represents a very significant — HUGE! — thermal impact on the aquatic ecology. NRC and DOE seem willfully blind to this.]

Chemical Impacts from Discharges:

The first chemical issue concerns the potential effects of nonradiological contaminants on aquatic organisms that could occur from nuclear power plant operations. This issue initially became a concern because some nuclear power plants used heavy metals in condenser tubing that could leach from the tubing and expose aquatic organisms to these contaminants (NRC 2024-TN10161). Because aquatic organisms can bioaccumulate heavy metals, even when exposed at low levels, this can be toxic to fish and other animals that consume contaminated organisms. However, Palisades has stainless steel condenser tubes that do not leach metals to the cooling-water discharge (Holtec 2023-TN10538). The NRC staff verified that the issue associated with heavy metals leaching from condenser tubing, does not apply to Palisades.

[Will that continue to be the case, as Holtec makes changes, as to the CCW heat exchangers, cooling towers, etc.? See Arnie Gundersen expert witness declaration testimony, above.]

For certain plant equipment and systems Holtec will use, Michigan EGLE approved chemical additives to control pH, scale, corrosion, and biofouling. The 2006 SEIS (NRC 2006-TN7346) and the Environmental New and Significant Review (Holtec 2023-TN10538) describe the

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chemicals used and the discharge limits under the NPDES permit no. MI0001457 and are incorporated by reference. Section 3.4 of this EA addresses the discharge of metals in cooling system effluent. As explained in that section, Palisades NPDES permit establishes allowable levels of metals including copper, silver, zinc, nickel, and lead (MDEQ 2014-TN10665; MEGLE 2023-TN10739). While the proposed preparation for the resumption of power operations would mean restarting chemical discharges from the CWIS into Lake Michigan, the chemical concentrations at the outfall are regulated by the NPDES permit. Also, no impacts to the aquatic environment from these chemicals were observed when Palisades was operating under its provisional license (1971–1991), full-term operating license (1991–2007), or its license renewal (2007–2022, expires 2031).

[The hydrazine limit requested by Holtec in the MI EGLE NPDES renewed permit application is shockingly high! Hydrazine is ultra-hazardous in even small amounts. And yet Holtec plans to discharge large amounts in Lake Michigan? This is unacceptable!]

The other chemical issue concerns the potential impacts on aquatic organisms from exposure to radionuclides from routine radiological effluent releases. The NRC requires nuclear power plants to maintain a REMP as per requirements specified in 10 CFR Part 50, Appendix I, 10 CFR Part 20-TN283, and 10 CFR Part 72-TN4884, and through plant-specific technical specifications. These collectively require that licensees establish and implement a REMP to obtain data on measurable levels of radiation and radioactive material. **The 2021 and 2022 REMP report did not show any measurable levels of radiation, above baseline environmental levels, detected in the vicinity of Palisades.** If power operations resume, Palisades would be required to remain in compliance with NRC radiological effluent limits and reimplement the REMP to ensure aquatic organisms' exposure to any radionuclides are within acceptable limits. **[Emphasis added.]**

[What does this even mean? It sounds like a whitewash/greenwash. This flippant statement should be compared to the actual annual radiological effluent reports from 2021 and 2022. Are NRC and DOE masking radioactive releases behind a vague and misleading claim about "background" radiation levels? Of course, the "background radiation" around PNP has gone up and up since 1971, when PNP began operations. This is because PNP releases radioactivity, and it increases in concentration in the environment, as more and more gets released, as PNP continues operating. Dr. Arjun Makhijain of IEER has reported that natural background radiation levels are less than 200 mR/yr. And yet, NRC and DOE have reported, since about the year 2010, that "background" radiation is more than 600 mR/yr. Lies, Damn Lies, and Statistics comes to mind. NRC and DOE included all exposures to radioactivity, including very high doses from certain medical procedures to a relatively small segment of the population, but then divided those doses across the entire (even medically untreated) population. They then declared an "average radiation dose" that an American person receives, even though most people do not have exposures to such high radiation doses for rare medical procedures. Instead of a natural background dose less than 200 mR/year being acknowledged, now "background" is considered to be more than three times higher. This is playing fast and loose with very vital health matters. DOE, NRC, and the nuclear industry are trying to normalize hazardous radioactivity, make it seem reasonable, how much radiation PNP is allowed to release into the environment. This is unacceptable behavior by NRC in particular, given its mandate to protect public health, public safety, and the environment. Instead, NRC and DOE seem to be trying to "confuse the public with fission and fusion," to downplay human health consequences from exposures to hazardous ionizing radiation released into the environment from PNP.]

3.7.3.2 Important Aquatic Species and Habitats

[As above, which ARE NOT important?]

As noted in Section 3.7.2.2, four State-listed fish species have occurred in the vicinity of Palisades, although the lake herring and shortjaw cisco have not been observed in 30 years (Table J-4 of this EA).

[How much did Palisades contribute to their demise? Have they been extirpated from the entirety of Lake Michigan? The Great Lakes?]

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The ISFSI expansion would occur in an area that is already concrete and not affect the surface water input.

[Well, concrete or pavement means run off; contaminants, be they toxic chemical or radioactive, would enter that run off, entering surface waters, including on-site wetlands, streams, and Lake Michigan, as well as groundwater, once the surface run off enters and descends down through soil.]

If the planned installation of multiple SMRs are approved, it will be subject to regulation by the NRC and the intake and discharge of any additional water from Lake Michigan will be subject to regulation under the CWA. Therefore, the NRC staff determined that the incremental effects of the proposed Federal actions related to aquatic ecology when added to the effects of other past, present, and reasonably foreseeable projects would not have significant cumulative effects.

[Holtec proposes nearly doubling Palisades' nuclear mega-wattage, and NRC and DOE merely shrug and says effectively NO impact?! The SMRs' construction alone would be a major negative impact, let alone their operation. If constructed and operated, and the zombie reactor restarted and operated, it would significantly increase the risk of one or multiple meltdowns. Both extremes of the risk spectrum would be operating at PNP — breakdown phase risks at the zombie reactor, break-in phase risks at the new SMRs. Fermi 1, Chornobyl 4, and Three Mile Island 2 were brand new reactors that had break-in phase meltdowns. The three reactors could mean domino effect multiple meltdowns, as happened at Fukushima Daiichi.]

The NRC staff identified, confirmed, and validated only minor changes in the known affected environment as part of this EA.

[Per above, NRC and DOE are essentially entirely ignoring the 2 SMR-300s, the new cask pad, etc. — ignoring major impacts, cumulative effects, etc. Is NRC and DOE's attitude "So sue us."?!]

the APE analysis also includes a 1 mi (1.6 km) buffer, which allows the NRC staff to evaluate the potential impacts to historic properties located nearby but outside of the Palisades site boundary.

[What about a 50-mile buffer instead? After all, NRC Chairman Greg Jaczko recommended Americans in Japan get at least 50 miles away from Fukushima Daiichi, after multiple meltdowns began there. If PNP melts down, impacts such as radioactive contamination could fallout at least that far. Chornobyl's radioactive fallout extended for more than a thousand miles in various directions, causing significant harmful impacts — to the Arctic Circle of Scandinavia (Lapland), Scotland, Indian Ocean, etc.]

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3.8.1.2 Cultural Background

The 2006 SEIS (NRC 2006-TN7346) describes the long-term cultural history and chronology for

this portion of the Great Lakes and southwest Michigan, specifically because Indigenous peoples lived in this region for at least the past 10,000 years.

[Well, they still do. Use of the past tense is inappropriate. They are not vanishing.]

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a built-environment survey of the Palisades facilities conducted by an architectural historian.

[But should not the entire PNP be declared a National Historic Site — it was designed in the mid-1960s; constructed from 1967-1971; and began operating in 1971. It is 60 years old. It could be a monument to the folly of man, per the following song lyrics:

Godzilla

Song by Blue Öyster Cult • 1977

*With a purposeful grimace and a terrible sound
He pulls the spitting high tension wires down
Helpless people on a subway train
Scream bug-eyed as he looks in on them
He picks up a bus and he throws it back down
As he wades through the buildings toward the center of town
Oh no, they say, he's got to go
Go go Godzilla, yeah
Oh no, there goes Tokyo
Go go Godzilla, yeah
Oh no, they say he's got to go
Go go Godzilla, yeah
Oh no, there goes Tokyo
Go go Godzilla, yeah
Godzilla
Godzilla
Rinji news o moshiagemasu
Rinji news o moshiagemasu
Godzilla ga Ginza hoomen e mukatte imasu
Daishkyu hinan shite kudasai
Daishkyu hinan shite kudasai
Oh no, they say, he's got to go
Go go Godzilla, yeah
Oh no, there goes Tokyo
Go go Godzilla, yeah
**History shows again and again
How nature points out the folly of men
Godzilla
History shows again and again
How nature points out the folly of men***

Godzilla
History shows again and again
How nature points out the folly of men
Godzilla
History shows again and again
How nature points out the folly of men
Godzilla

The original Godzilla novel was, after all, a powerful anti-nuclear statement, in the aftermath of U.S. hydrogen bomb testing in the South Pacific, such as the Operation Castle Bravo radiological disaster in 1954, and after the U.S. atom bombed Hiroshima and Nagasaki in 1945.]

Historic properties are defined as cultural resources which are eligible or listed on the National Register of Historic Places (NRHP) (NPS 2024-TN10772).

[The whole PNP site qualifies, per above. It is 1/4th as old as our country!]

Historic properties are defined as cultural resources which are eligible or listed on the National Register of Historic Places (NRHP) (NPS 2024-TN10772). Results from the archaeological survey indicated that there are three archaeological sites located at Palisades (20VA92, 20VA93 and 20VA94), but none of these sites are eligible or potentially eligible for the NRHP (SEARCH 2024-TN10846; HDI 2024-TN10669). The Michigan SHPO concurred with these determinations by letter dated September 18, 2024 (MI SHPO 2024-TN10850). All other

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regional site information within an approximate 1 mi (1.6 km) radius of Palisades remains the same as in the 2006 SEIS (NRC 2006-TN7346). Results from the architectural survey recommended that only the containment building was potentially eligible for NRHP listing (HDI 2024-TN10669; Theriot and Travisano 2024-TN10847; MI SHPO 2024-TN10844; MI SHPO 2024-TN10873), but after further evaluation and consultation, the Michigan SHPO determined that the containment building cannot be considered separately from the remaining parts of the Palisades facility and does not rise to the level of significance required for listing in the NRHP under Criteria C for Architecture/Engineering by letter dated November 6, 2024 (MI SHPO 2024-TN10844). The NRC staff transmitted the archaeological report to the federally recognized Indian Tribes (NRC 2024-TN11054); no comments were received.

[No, the entire PNP — a monument to human folly — 50+ years of extreme risk taking, the entire Great Lakes put at existential risk.]

3.8.2 Environmental Impacts from the Preparations for Resumption of Power Operations

Section 3.1 of this EA describes the activities Holtec is completing as part of the preparations for the resumption of power operations. Several of these activities have expected ground disturbance in and around the Palisades site. These ground-disturbing activities include the construction of a new access road, removal and construction of a new security fence, a re-cabling project between the reactor facility and the cooling towers, demolition of two current

radioactive storage facilities, and construction of a new radioactive waste storage facility and a new digital storage facility (see Table 3-1 of this EA). These activities, as shown in Figure 3-1 of this EA, are all occurring within the western portion of the Palisades site, with the only exception being the construction of the digital storage facility.

[Potential harm to Indigenous sites]

The western portion of Palisades was considerably modified through ground disturbance, sand dune remediation, and shoreline modification during the original construction of Palisades in the late-1960s and early 1970s (Appendix I to this EA) (SEARCH 2024-TN10846). Although no archaeological survey (e.g., shovel testing) occurred in the critical dune environment within the western portion of Palisades, if future ground-disturbing activities occur within this area, then a Michigan State critical dune permit would be required.

[Remediation? Damage or destruction!]

Any Indigenous sites in that area were destroyed way back then, when no one involved really cared. Does Nobody Really Care (NRC), about the Destruction of Everthing (DOE) in 2025, as well?]

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Holtec will have procedures to address inadvertent discoveries and notification protocols.

[So we are just supposed to trust them? Who will enforce compliance? Talk is cheap — is this a dead letter promise? Holtec is infamous for lying. Thus we incorporate by reference, as if fully rewritten herein, the following four documents, posted online here:

<https://beyondnuclear.org/holtec-is-infamous-for-lying/>

<https://beyondnuclear.org/wp-content/uploads/2024/03/2-29-24-Holtec-two-pager.pdf>

<https://archive.beyondnuclear.org/centralized-storage/2019/7/25/radioactive-skeletons-in-holtec-internationals-closet.html>

Nancy Vann, a watchdog on the Indian Point nuclear power plant, has published "rap sheets" on Holtec International and SNC-Lavalin, as well: [2/16/20 Holtec & SNC-Lavalin Profiles and "Rap Sheet"](#)

As Holtec cannot be trusted, and is infamous for lying, corrupton, and criminality, how can the State of Michigan, NRC, and DOE trust Holtec to restart PNP, and build/operate SMRs there, and at Big Rock Point, and enable Holtec to do so with many billions of dollars in taxpayer and ratepayer bailouts?!!]

3.8.3 Environmental Impacts from the Resumption of Power Operations

In 2006, the previous Palisades operator (Entergy) had existing historic and cultural resources procedures (NMC 2006-TN10743), which provided a screening tool and mechanism to protect

archaeological sites and other resources that may be inadvertently encountered during day-to-day operations (NRC 2006-TN7346).

[Not true — Entergy didn't take over PNP till 2007.]

The Michigan SHPO concurred with NRC's determination of "no historic properties are affected" as part of the 2006 SEIS (NRC 2006-TN7346), because while Palisades lacked archaeological and architectural surveys, Entergy had procedures in place to protect unidentified cultural resources.

[Nobody really cares (NRC) about the Destruction of Everything (DOE) enough to even require knowing — a plan to make a plan, a promise to make a promise, is not good enough protection for Indigenous burials and other culturally significant sites, which could easily be destroyed at PNP in the future, due to such a meaningless plan and such an empty promise. Talk is cheap.]

In accordance with 36 CFR 800.4 (TN513), this undertaking will have no historic properties affected as ***no historic properties have been identified***, and Holtec will have procedures to address inadvertent discoveries and notification protocols. Additionally, no historic and cultural resources have been identified within the APE. Therefore, the NRC staff determined that impacts to historic and cultural resources related to the activities associated with resumption of power operations would be NOT SIGNIFICANT. ***[Emphasis added.]***

[Because no one — at at NRC, DOE, and Holtec — has ever bothered to really look very hard? Doesn't NEPA itself require a "hard look"? That certainly has not happened in this EA — rather, hardly a look has happened. An EIS/PEIS is needed.]

3.9 Socioeconomics

*[Why, if PNP has been located in Covert Township since the mid-1960s (designed by mid-1960s, ground broken for construction in 1967, operated from 1971 to 2022), is poverty so prevalent in the host township, more than a half century later? Has PNP not shaed the vast wealth, and mostly just pocketed it instead? At around Easter, 2013, at NRC's annual performance review public meeting, Entergy Site V.P. Tony Vitale bragged about \$100,000 in charitable contributions in the past year. ONLY \$100,000?! How much profit did that represent? A few **hours** worth?!]*

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The following tables present demographic, income, and housing information about the two-county region of influence (ROI) from the Census Bureau. Based on the information presented in Table 3-6, racial and ethnic diversity in the ROI is similar to the State of Michigan as a whole.

[But Covert Twp. has a large African American percentage of the population — significantly higher than the State of Michigan and U.S.A. averages. Covert also has a large percentage of the populations below the poverty line.]

Table 3-6

Percent Black or African American race alone

MI — 13.5%

[But Covert Township has a percentage of the populatiuon that is Black or African American that is much higher than this figure for the State of Michigan. Are NRC and DOE intentionally ignoring and concealing this in the EA?

This would not be surprising, as shocking as it is. NRC's EJ violations during environmental review of Holtec's Consolidated Interim Storage Facility in NM's environmental review processes were widespread and profound. NRC never even recognized the legal standing of the s.e. NM EJ organization, Alliance for Environmental Strategies (AFES), in the licesing proceeding, and then summarily dismissed all of AFES's proposed contentions. NRC's public comment meeting facilitator, Francis Xavier "Chip" Cameron, rudely interrupted AFES co-founder Noel Marquez's public comment in Carlsbad, NM, and even attempted to physically intimidate him to step away from the microphone. Apparently Chip Cameron was angry at the public commenter for having dared present part of his comments in Spanish language. Ironically enough, Noel Marquez's comments were about how Latinos such as his family had been discriminated against and mistreated for generations. Marquez gave the example of his own mother having had to attend public school in a shack, behind the main schoolhouse where white children attended, separate and unequal. Of course, the entire context for the Holtec CISF proceedings in NM where about the targeting of a majority-minority state, where more than half the population statewide is Latino and/or Indigenous, with the world's largest single highly radioactive irradiated nuclear fuel dump, located atop a culturally rich Indigenous site, was and is an EJ violation in the first place — especially considering the disproportionate nuclear and fossil fuel pollution burden New Mexians already bear.

For this reason, we incorporate by reference as if fully rewritten herein, the following:

<https://archive.beyondnuclear.org/centralized-storage/2021/7/29/water-air-and-land-a-sacred-trust.html>

Again, such EJ violations by NRC and the nuclear power industry, as shocking as they are, should no longer be surprising, as NRC and the industry have behaved this way for a long time, as at the Skull Valley Goshutes Indian Reservation in Utah. We incorporate by reference as if fully rewritten herein, the following:

<http://archives.nirs.us/radwaste/scullvalley/skullvalley.htm>

And similarly, DOE has not only tested nuclear weapons, but has threatened to dump the entire country's highly radioactive wastes, on Western Shoshone land in Nevada, for many decades.

We incorporate by reference as if fully rewritten herein, the following:

<https://www.nativecommunityactioncouncil.org/>

<http://archives.nirs.us/radwaste/yucca/yuccahome.htm>

<https://beyondnuclear.org/radioactive-waste/yucca-mountain/>

<https://archive.beyondnuclear.org/yucca-mountain/>

Percent American Indian and Alaska Native race alone

[This is only because Native Americans were driven out of these counties by force and even genocide. This included the Trail of Death in 1840. Thousands of Indigenous persons from southern Michigan were rounded up at gun point by the U.S. Army. The concentration camp was located at what is now the train station in Kalamazoo. They were marched at gun point west of the Mississippi River. Many died during the death march. They have been largely replaced by people of other ethnic ancestries. This said, Indigenous Nations are not vanishing. The descendants of the survivors of the American genocide perpetrated against Native Americans in the area still live on, further away, as mentioned above, at the Potawatomi communities of Pokagon, Gun Lake, and Huron Nottawatseppi, in s.w. MI, as but three examples, and in other Indigenous Nations further away geographically, such as the Kansas Potawatomi. The Grand River Odawa are just north from PNP. Indigenous Nations individuals and families also live throughout the region, away from reservations and concentrated communities. The examples of “not vanishing” go on and on, including regular pow wows and other cultural events held throughout the area, and beyond.]

NRC’s scope is too narrow — for example, what about the Gun Lake Potawatomi in Barry Co., the Pokagon Potawatomi in Cass Co., etc.?

What about the threat to Native Americans/Indigenous Nations, out to a vast distance — such as throughout the Great Lakes — if PNP had a catastrophic meltdown?! In this sense, the PNP restart and SMR new builds can be seen as yet another part of the cultural and even physical genocide of Indigenous Nations, if the worst happens. But all ethnic groups would suffer under such circumstances.]

Percent Hispanic, Latino, or Spanish Ethnicity of Any Race of total population

Van Buren Co. 11.9%

[This is more than twice the State of MI’s 5.6% — a reflection of migrant agricultural workforce history, some of whom have settled in the area, over decades — Van Buren and neighboring counties are an agricultural heartland for all of Michigan.

Thus we incorporate by reference as if fully rewritten herein the following:

<https://beyondnuclear.org/risky-revival-how-michigans-palisades-nuclear-plant-could-impact-agriculture/>

The article reports:

Approximately 6,362 farms are within 50 miles of Palisades. In Van Buren County alone, where the plant is located, there are 838 farms. Michigan's southwestern corner, home to [80% of the state's farms](#), is often called the "blueberry capital of the world."

"A leak (and) this 150-year-old farm is done," said Bill Adams, who runs Adams Blueberry Farms in Hartford, Michigan, 16 miles south of the plant. "Why would they restart something that old and sitting this long?"

PNP restart, and SMR new builds, threatens this agricultural heartland of Michigan. If radioactive foodstuffs are sold and consumed, the health damage would extend far away, across the entire state, and beyond.

Why are other impacted counties, like Kalamazoo downwind, not mentioned? Elsewhere in the EA, nearly ten counties are listed, for certain EA analyses. Why doesn't every analysis in this EA extend to the same nearly ten county area?

Why is Benton Harbor in Berrien Co. not mentioned? It has a majority African American population. It has a high poverty rate. It is about 15 miles in either direction from both PNP, as well as from Cook nuclear power plant. What about the Cumulative Effects from PNP and Cook NPP on the African American and low income community of Benton Harbor, MI?

Such more extensive and in depth analysis should be carried out, in the EIS/PEIS we have requested. This shallow EA does not suffice.]

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Table 3-7 Estimated Income Information for the Socioeconomic Region of Influence of Palisades Nuclear Plant, 2018–2022, 5-Year Estimates

[In their analysis and EA, NRC and DOE have either missed entirely, or hiddeb from view, pockets of significant African American low income status (that is, individuals and/or households who live below the poverty line), as in Covert and Benton Harbor, behind these large Van Buren and Berrien county figures — in this way, NRC commits its very own EJ violations, as mentioned above.

Again, this is not surprising, as shocking as it is. For example, in the Interim Storage Partners, Texas and Holtec, New Mexico CISF proceedings, NRC did not seem to notice that the vast majority of residents along a 50-mile stretch of railway that would be used to haul highly radioactive waste to those dumps were Latino. Around half of those Latino residents did not speak English well.

See the El Paso to Monhans row in the table in the following fact sheet:

<https://static1.1.sqspcdn.com/static/f/356082/28466350/1631389405890/CISF+Dangers+and+Holtec+and+ISP+sites-3.pdf?token=uGCE8X%2F2NlzM7nFnvadeO7x%2Fd18%3D>

We incorporate this fact sheet by reference, as if fully rewritten herein.

In fact, we do the same for all 8 fact sheets in the series, here:

<https://archive.beyondnuclear.org/centralized-storage/2021/9/11/new-beyond-nuclear-fact-sheets-opposing-consolidated-interim.html>

And yet the NRC ASLB licensing proceedings, and the NRC environmental review proceedings, were almost entirely conducted in ENGLISH language. Although NRC made a token effort — providing Spanish speaking staffers who spoke very briefly at public meetings, translating a handful of the most basic documents into Spanish — almost the entirety of the proceedings and documents were English-only. As mentioned above, when a co-founder of AFES dared to speak Spanish at a public meeting in Carlsbad, NM, NRC meeting facilitator Chip Cameron cut him off before his allotted time had expired, and then even tried to physically intimidate the public commenter, to force him to step away from the microphone — apparently, because the person dared to deliver part of his comments in Spanish.

Of course, none of NRC's proceedings or documents in the TX and NM proceedings were translated into Indigenous languages, despite clear interest and concern from those Indigenous Nations. They were forced to take part in English, or not at all. Any Indigenous-only speakers — including revered elders, the traditional leaders of their Nations — were largely to entirely excluded from participating. These concerns extend to these PNP proceedings, given the Indigenous Nations, and the Latino population (some of whom do not speak English well, in the area of concern.)

Table 3-8 Housing in the Region of Influence of Palisades Nuclear Plant, 2018–2022, 5-Year Estimate

[Former President Jimmy Carter and former First Lady Rosalyn Carter did Habitat for Humanity house-building volunteer work in Benton Harbor, MI, as reported on local s.w. MI television during the honors after President Carter's passing on in late 2024. This is another indication of low income households in this majority African American community, socioeconomic issues either unintentionally missed, or intentionally left out, of NRC and DOE's EA. Also left out, for some reason or other, is a tragic lead poisoning epidemic via the water supply in Benton Harbor, not unlike what happened to the residents of Flint, MI, many of whom are African American and low income. Another issue left out of this EA by DOE and NRC was the theft of Jean Klock Park for a PGA golf course and high income gated community in Benton Harbor. DOE and NRC could and should include these important socioeconomics and EJ issues in the EIS/PEIS we've requested.]

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In addition, the resumption of operations at Palisades would increase the amount of tax money paid to Van Buren County and the City of Benton Harbor. Annual property tax payments for Palisades paid to Van Buren County (with a small portion to the City of Benton Harbor) averaged \$10 million per year prior to reactor shutdown and the commencement of decommissioning. Annual property tax payments during Palisades decommissioning decreased over a 6-year period to approximately \$1.6 million. Annual property tax payments

could increase up to \$15.6 million in 2025 due to power plant modifications and improvements that could increase the nuclear plant's valuation. However, Holtec expects property tax payments to return to pre-decommissioning levels (approximately \$10 million per year) starting in 2027 (Holtec 2023-TN10538).

[Why would Holtec pay property taxes to the City of Benton Harbor, which is located in Berrien Co.? This would be news to us. Do NRC and DOE actually mean Covert Twp., in Van Buren Co.??]

Other socioeconomic impacts from nuclear power plant operations include effects on community services, transportation (e.g., traffic volumes), and the economic impacts of expenditures for goods and services including labor. These impacts are described in the 2006 SEIS (NRC 2006-TN7346), and NRC staff do not expect socioeconomic impacts to noticeably differ after the resumption of power operations. Based on this information, including information from Holtec (Holtec 2023-TN10538), the socioeconomic impacts from the proposed Federal actions and the resumption of reactor power operations would be similar to those described in the 2006 SEIS and would be **NOT SIGNIFICANT. [Emphasis added.]**

*[Of course it's **significant**. DOE and NRC have gotten this entirely wrong. PNP has a company township, county, multi-county area (Van Buren, Berrien, and Allegan), and state. All have been bought off. It is not good. NRC and DOE themselves are participants in this pro-Holtec, pro-PNP "company town" worldview that extends out so far geographically. Of course, not everyone is in on the take, per our comments re: socioeconomics and EJ, above. There is significant low income impacts (individuals, households, and entire communities and EJ impacts, in Covert Twp., Van Buren County, Benton Harbor, Berrien County, and beyond in s.w. MI, particularly in Black communities, and Latino communities, and further afield geographically in Indigenous Nations communities (the Pokagon, Gun Lake, and Huron Nottawaseppi, to name but three in s.w. MI). But DOE and NRC are blind to all this, perhaps intentionally and willfully so. After all, as Upton Sinclair once wrote: "It is difficult to get a man to understand something when his salary depends upon his not understanding it." This applies to the entire nuclear establishment. No wonder it is so willfully blinded to its own environmental injustice, including at PNP and Big Rock Point.]*

3.10 Environmental Justice

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Minority Populations: Minority populations are identified when (1) the minority population of an affected area exceeds 50 percent or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. Meaningfully greater was used in this analysis to identify minority populations within a 50 mi (80 km) radius.

Low-income Population: Low-income populations in an affected area are identified with the annual statistical poverty thresholds from the Census Bureau's Current Population Reports, Series P60, on Income and Poverty. Meaningfully greater was used in this analysis to identify low-income populations within a 50 mi (80 km) radius.

[Compare Covert and Benton Harbor to Van Buren Co. and Berrien Co., the State of MI, and the USA. Again, NRC and DOE have hidden the truth about disproportionate EJ impacts by expanding the scope, and watering down the EJ impacts, across the entire county. “Lies, Damn Lies, and Statistics” comes to mind. How to hide the truth, by watering down damning statistics. That is, now to lie about EJ, and thereby find no significant impact, as in this EA. If NRC can’t find EJ violations/impacts with Holtec’s CISF in NM, how can we expect them to see it at PNP?]

Such effects may include biological, cultural, economic, or social impacts.

[Covert has a very special and rich African American cultural heritage. The Pokagon, Gun Lake, and Huron Nottawaseppi Potawatomi communities, within the danger zone of PNP in s.w. MI, have their very special and rich Indigenous cultural heritage. Benton Harbor has a special and rich Black cultural heritage, as well. Not only does PNP’s restart, and SMR new builds, threaten these cultural heritages, Holtec also violates them from an EJ perspective, including in terms of health impact risks, let alone economic and wealth disparity. NRC and DOE are complicit, in the form of this woefully inadequate EA, most especially its fatally flaw socioeconomics and EJ analyses and conclusions.]

3.10.1 Affected Environment

For this review, the EJ affected environment is a 50 mi (80 km) radius of the Palisades site,

[If Pokagon, Gun Lake, and Nottawaseppi Huron are beyond 50 miles away, then the scope must be expanded. NRC and DOE cannot neglect an adequate and truthful EJ and socioeconomics analysis, simply by narrowing the geographic radius arbitrarily. After all, PNP is located on Anishinaabe Aki, Indigenous First Nations land, effectively and actually largely stolen over time by the now dominant USA society and government, which NRC and DOE directly represent in this environmental review proceeding.]

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This radius encompasses nine counties in Michigan: Allegan, Barry, Berrien, Cass, Kalamazoo, Kent, Ottawa, St. Joseph and Van Buren, and three counties in northern Indiana: Elkhart, LaPorte, and St. Joseph.

[Of course, impacts on Lake Michigan would harm Chicago IL, the WI and IN shorelines of Lake Michigan inland for a considerable distance, and the entire Great Lakes Basin watershed, downstream, downwind, up the food chain, and down the generations, including in two Canadian provinces, and a large number of Indigenous Nations therein. The list of nine counties, above, is what we referred to earlier in our comments. NRC and DOE analyses across the board in this EA should include this geographic scope of nine counties, not just for this subject matter, but for all subject matter in this EA. In certain subject matter areas, for example only two counties were included — Van Buren and Berrien. All nine counties should be included, for every single subject matter analysis, throughout this EA. This is why an EIS/PEIS should be done, as we and others have requested.]

The Community Snapshot in Enclosure 18, Attachment 1 provides a detailed characterization of existing environmental burdens in Covert Township, utilizing the EPA's EJScreen tool.
[footnote #] 4

[Footnote #] 4 EJScreen is EJ screening and mapping tool by EPA that helps identify areas with environmental burdens and vulnerable populations.

[By definition then, NRC and EPA seem to recognize that Covert is an EJ community. Hard to tell that by NRC's overall analysis and conclusions, though. NRC and DOE explain all the EJ burdens away, through "Lies, Damn Lies, and Statistics." They seem to dilute the EJ burdens by dividing them across the whole of Van Buren County. But the bulk of the burden is borne in Covert Twp., MI.]

Specifically, the analysis of Covert Township revealed high-energy costs, elevated asthma rates, transportation barriers, and significant concentrations of toxic wastewater. Additionally, a broader examination of the EJ affected environment mirrors these findings, indicating systemic issues that affect community health and resilience.

[This is a very significant admission. And yet, NRC and DOE's own conclusions seems to disregard this acknowledgement of disproportionate burden, an EJ violation. PNP has nothing to do with it? In a sense, that's true — PNP wants nothing to do with "it".

High-energy costs is most ironic — isn't nuclear power supposed to be "too cheap to meter"? Oh yeah, that was a lie when Atomic Energy Commission (DOE and NRC's predecessor agency) chairman Lewis Strauss uttered those words in the early 1950s, in order to "sell" "Atoms for Peace," as documented by Dr. Arjun Makhijani and Scott Saleska in the 1999 book The Nuclear Power Deception:

We incorporate by reference, as if fully rewritten herein:

<https://ieer.org/resource/books/the-nuclear-power-deception/>

Isn't PNP a couple/few miles from the Covert town center? Why can't PNP's supposedly cheap electricity make it two to three miles, to Covert then? PNP will export electricity as far away as Illinois, and to Michigan's northern Lower Peninsula, under Holtec's Power Purchase Agreement with Wolverine and Hoosier, but it can't make it to Covert? Something is rotten in Denmark. Something does not add up here. And yet DOE and NRC have next to nothing to say about this? Who is hiding what, and why?

Elevated asthma rates are also ironic. Is it because of the natural gas power plant, directly across the highways from PNP? Does PNP contribute to fossil fuel combustion pollution in the local area? Is it because of the large traffic volume on I-196 and Blue Star Highway? Clearly, dirty energy harms the health of Covert residents. PNP is also dirty energy. Does PNP contribute to the high asthma rates in Covert is other way, besides combustion of fossil fuels on-site? Of course, 1,600 workers during preparations for restart, 600 workers during operations, and 1,600 workers during future refueling outages, driving into PNP in personal vehicles, means that much more fossil fuel combustion pollution, an added burden on locals' lungs.

Transportation barriers is alarming. What are Covert residents supposed to do, then, if a general emergency is declared at PNP, and evacuation orders are issued. Does the PNP emergency plan include buses, or other means, to transport Covert residents out of harm's way? If not, why not?! Of course, PNP's emergency plan should never have been terminated in the first place, after permanent shutdown on May 20, 2022. The more than 900 metric tons of irradiated nuclear fuel alone — 2/3rds still in the indoor wet storage pool, and 1/3rd in dry casks — is still a source of tremendous radiological risk on-site. It was wrong for Entergy, Holtec, and NRC, as well as local government jurisdictions, from local to county to state, to have ended emergency planning and preparedness.

Significant concentrations of toxic wastewater is also alarming. It echoes lead contamination of drinking water in Benton Harbor, MI — like Covert, another community with a very large percentage of African Americans, as well as those living below the poverty line.

Why haven't NRC and DOE provided more information about these significant concentrations of toxic drinking water? What are the toxic chemicals contaminating the drinking water? Where did they come from? How did they get into the drinking water? Isn't Covert connected to South Haven's municipal drinking water system, like PNP itself is? If not, why not? Of course, South Haven's drinking water, drawn from Lake Michigan, is contaminated by PNP's wastewater discharges themselves, including tritium, hydrazine, and many more radioactive isotopes and toxic chemicals. Is this where the contamination of Covert's drinking water originated — PNP itself?

NRC and DOE have admitted "systemic issues that affect community health and resilience," in Covert. So how then can they conclude there are no significant EJ issues to be addressed, re: PNP's restart and SMR new builds?]

Sections A and B of the CBP (DOE 2024-TN10833), along with public comments during local meetings, provide an understanding of the current state of Holtec's EJ engagement. Combined, these references reflect a complex relationship between Palisades and local communities. Workforce development, service, and advocacy organizations all reported a lack of awareness about DOE's CBP and noted a decline in donations and volunteerism since the plant's shutdown in 2022. They also noted significant barriers to attracting a workforce, such as limited affordable housing and inadequate public transportation options, which contribute to the economic disadvantages in Benton Harbor and surrounding areas. Additionally, concerns about perceived health impacts from multiple local nuclear facilities, along with a historical context of racial disparities in community support and job opportunities, have led to mistrust among minority organizations. Although decommissioning did not drastically shift community needs, many residents look forward to potential economic benefits from the Palisades' planned resumption of power operations. Community concerns primarily focus on housing, transportation, job training, and food security, with local organizations striving to support needs based on demand rather than specific income levels. Overall, the anticipated resumption of power operations has raised hopes for economic improvement, but significant challenges remain regarding community engagement and equity (NRC 2024-TN10842).

[In the early 2000s, African American workers at PNP, who hailed from the local area, began to organize for better working conditions, better pay, better jobs, and well overdue job promotions. They were often stuck in lower paid, more hazardous jobs, such as radioactive waste handling, with little prospect for promotion. Racial discrimination seemed to explain these conditions. But

when they began to organize to demand change, they met a fierce, racist backlash in the PNP workplace. Shockingly, nooses were left in or near their lockers, and in other public places/ common spaces, where they would be sure to see them. The unmistakable message from their racist co-workers, of course, was a threat of lynching. This was reported in area news outlets at the time. So clearly, the EJ violations have not just harmed African American and low income residents of Covert and Benton Harbor, but even African American workers at PNP itself. This has included blatant racist threats of extreme violence, including death threats, for daring to request better working conditions, better pay, and long overdue promotions. Where was the FBI and Michigan State Police? Why didn't the FBI and Michigan State Police investigate and prosecute those responsible for these hate crimes at PNP?]

Covert Township is clearly desperately dependent on the taxes it gets from PNP for a significant part of its municipal revenues. The same can be said for the City of South Haven, and Van Buren County. This "company town" relationship is most unhealthy. It means these local municipalities will put up with whatever PNP demands of them, including pollution, safety and environmental risks, and other abuses. For low income and people of color residents in the area, such as the African American communities in Covert and Benton Harbor, this is a disproportionate impact, an EJ violation. DOE and NRC are willfully blind, if they think these impacts are not significant.

These issues have barely been addressed, if at all, in the EA. DOE and NRC have apparently attempted to mask these significant EJ impacts, by diluting them across the entire population of Van Buren and Berrien counties, as well as the State of Michigan as a whole. But of course, the brunt of the burden falls on the African American and low income residents of Covert, and Benton Harbor.

An independent federal investigation of NRC's and DOE's own EJ violations should be launched.]

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Figure 3-6 Environmental Justice 50 mi (80 km) Affected Environment. Sources: USCB 2023-TN11056, USCB 2022-TN11057

[It appears that more than half the land mass of Van Buren County, is minority and/or low income. Why is this, after nearly 60 years of PNP, if nuclear power is supposedly so great for the economy?! Especially considering two large reactors at Cook, just 30 miles south, as well. It seems the nuclear power plants are not sharing their vast wealth with these local minority and/ or low income communities, then?]

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3.10.2 Environmental Impacts from the Preparations for Resumption of Power Operations

Preparations for the resumption of power operations activities are not expected to have significant human health or environment land use, air, water, or waste generation and disposal effects on EJ populations living near Palisades.

[It's quite odd that NRC and DOE say that. 900 metric tons of highly radioactive irradiated nuclear fuel at PNP is one of the greatest concentrations of any single nuclear power plant site in the US. It has nowhere else to go. It is de facto permanent on-site storage. Some of the highly radioactive waste has been stored on-site since 1971, 54 years ago, with no end in sight. It is vulnerable to catastrophic releases of hazardous radioactivity into the environment, as we've said a million times over to NRC and DOE. But our warnings have fallen on deaf ears, every single time.]

It is audacious that NRC and DOE and the State of Michigan have consistently denied health impacts coming from PNP. After all, there are annual effluent reports, showing that PNP discharges a certain amount of radioactivity into the air and water, year after year. The U.S. National Academies of Science have simultaneously warned, under the Linear, No Threshold theory, that any exposure to radioactivity carries a health risk. There is no threshold below which the risk is zero. And these risks accumulate over a lifetime. See:

<http://archives.nirs.us/press/06-30-2005/1>

which we incorporate by reference, as if fully rewritten herein.

*This is **willful blindness** by the powers that be. But the company town, company county, company multi-county area, and company state are all a part of this gaslighting too. It must stop. It is an EJ violation.]*

Given the presence of 590 EJ census block groups in the affected environment, EJ populations could experience disproportionate effects due to increased vehicular traffic, the increased number of workers, and associated noise. However, since the human health and environmental effects would be similar to those experienced during previous Palisades refueling outages, as described in the 2006 SEIS (NRC 2006-TN7346), and would predominately occur within the developed areas of the industrial site, ***impacts to EJ populations would not be disproportionately high and adverse, and therefore, would be NOT SIGNIFICANT.*** ***[Emphasis added.]***

[There it is. How can NRC and DOE say this, after what they admitted above? This is an outrageous conclusion that must be taken back. An EJ analysis in an EIS/PEIS, instead of this woefully inadequate EA, should dispense with the "Lies, Damn Lies, and Statistics," and gaslighting, and tell the truth about EJ, for a change.]

3.10.3 Environmental Impacts from the Resumption of Power Operations

Human health and environmental effects of nuclear power plant operations would be similar to those described in the 2006 SEIS (NRC 2006-TN7346), and the resumption of power operations at Palisades is not likely to result in any new, different, or increased human health and environmental effects beyond what has already been experienced.

[Unless of course PNP has a catastrophic meltdown — the risks of which were already high, and are now much higher, as due to Holtec's neglect of maintenance of safety-significant SSCs, such as the steam generator tubes, to name but one example. As mentioned above, CRAC-II in 1982 predicted a thousand peak early deaths (acute radiation poisoning deaths, 7,000 peak

early radiation injuries, and 10,000 latent cancer fatalities, if PNP has a meltdown. As AP's Jeff Donn reported after Fukushima's catastrophe began, populations have soared since 1982 around US atomic reactors like PNP, so casualties would now be even worse, as more people are in harm's way. Donn also cited pressurized thermal shock and reactor pressure vessel embrittlement as a top example of NRC regulatory retreat. PNP has the worst embrittled reactor pressure vessel embrittlement in the country, with Point Beach Unit 2 just across Lake Michigan running a close second worst. PTS of the RPV is another pathway to reactor core meltdown at PNP.

And of course, as mentioned just above, NAS has re-affirmed, again and again over decades, that any exposure to radioactivity is harmful to health, and that these risks accumulate over a lifetime of exposures. So PNP restart, SMR new builds, and many decades to come of up to three reactors operating at the site, discharging radioactivity into the environment the whole time even under "routine" operations, means that local residents' health risks will increase. DOE and NRC's statement above is bogus, outrageous, and dangerously misleading. It should be withdrawn, and reconsidered in an EIS/PEIS.]

Potential environmental effects include changes in socioeconomic conditions (such as traffic volumes, demand for community services, job creation, income generation, and tax revenue changes), air and water quality, and waste generation and disposal. Given the presence of 590 EJ census block groups in the affected environment, **EJ populations could experience disproportionate effects. [Emphasis added.]**

[This is a significant admission. Why then do NRC and DOE deny significant EJ impacts? This seems to be a blatant, unexplained and inexplicable contradiction in terms, a non sequitor. And why is there no mention of radiological risks/impacts?]

In addition, communities near nuclear facilities can face health risks from radiation exposure and contaminated water. EJ populations, in particular, are vulnerable due to limited means and resources to advocate for their health and safety, and pre-existing challenges such as elevated asthma rates and transportation barriers.

[Yes, that all seems accurate. But I already have a bad feeling that DOE and NRC are about to pull a fast one...]

Based on the human health and environmental effects conclusions for reactor operations at Palisades in the 2006 SEIS (NRC 2006-TN7346) and the review of human health in Section 3.11 of this draft EA, radiological or nonradiological health effects from the resumption of power operations would not be significant.

Further, DOE concluded human health and environmental effects would be the same as was experienced during previous Palisades reactor operation (DOE 2024-TN10775). Since no special pathway receptors have been identified, EJ populations near Palisades are not expected to experience disproportionately high and adverse human health and environmental effects from the proposed Federal actions. **Therefore, the impact to EJ populations from the resumption of power operations would be NOT SIGNIFICANT. [Emphasis added.]**

[THERE'S the fast one. So, human health impacts from releases of hazardous radioactive substances into the environment, and releases of toxic chemicals such as hydrazine and biocides, are zero, because all these releases disappear into nothingness, like magic? What

about bioaccumulation, biomagnification, bioconcentration, as Dr. Rosalie Bertell warned about? In a few short sentences above, DOE and NRC entirely reverse themselves the significance of the EJ impacts from Holtec's schemes of reactor restart (and again, from SMR new builds — leaving this out is illegal segmentation under NEPA, as we've commented above).

Note that these two agencies, NRC and DOE, that are behaving so ghoulishly here, used to be one agency — the AEC, the US Atomic Energy Commission. But AEC's reputation was mud, because it had behaved so ghoulishly itself, for so long a time, that it was split up into NRC (with a mandate to regulate safety and environmental and health protection) and DOE (where AEC's nuclear power promotional agenda was transferred to). But NRC has long violated its mandate, and promoted nuclear power in many different ways, including being a rubberstamp agency, completely captured by the industry it is supposed to regulate. We are ever more back to the future now — NRC is now ever more promotional, with Congress's and President Biden's, in the form of the ADVANCE Act, a most outrageous betrayal of public health, safety, and environmental protection, putting the nuclear power industry's bottom line, its profit margin, as the top consideration. Willful blindness abounds, as EJ communities in Covert, Benton Harbor, etc., suffer the consequences.]

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Table G 1

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The proposed reasonably foreseeable projects, such as SLR and the SMRs, are not expected to have any new or significant disproportionately high and adverse human health or environmental effects on EJ populations or communities near Palisades beyond what has already been experienced. Therefore, the NRC staff determined that the incremental effects of the proposed Federal actions to EJ populations when added to the effects of other past, present, and reasonably foreseeable projects would not have significant cumulative effects.

[So, 3 reactors at PNP, and 2 more at Cook, would be “no biggie” for Covert, Benton Harbor, Pokagon, Gun Lake, Nottawaseppi, and other EJ communities? Again, DOE and NRC see no EJ significance, Again, we must ask, is this because NRC and DOE regard these EJ communities as not significant themselves, so even LARGE, major negative impacts cannot be significant, given that? DOE and NRC are themselves violating EJ, not just Holtec.]

3.11.1 Radiological Human Health

[NRC has “bag limits,” so to speak — how many people it allows itself to kill or injure, with radioactivity from nuclear power plants like PNP, and still call it “reasonable assurance of adequate protection of health and safety,” the legal standard under the Atomic Energy Act of 1954, as Amended. These bag limits are referred to as QHOs. Does this translate as Quantitative, and/or Qualitative, Health Objectives. Jennifer Uhle, an NRC staffer from an agency technical and research branch, spoke about QHOs to the NRC Commissioners once, around 2014 or so. One QHO is for disasters, like reactor core meltdowns. Being “accidents,” NRC reasoned that it would be reasonable to allow for a 1/10th of 1% increase in the number of accidental deaths in the U.S., as compared to all accidental deaths, from all accidental causes, that already occur in

the country. This includes everything from car crashes, to falls in the shower, falls off ladders, and everything in between. But are reactor meltdowns “accidents”? Not really. They are calculated risks, gambles that go badly. Restarting PNP, and adding SMRs, is like playing radioactive Russian roulette on the Great Lakes shoreline. It could well end badly. NRC seems to think this is reasonable assurance of adequate protection. We do not feel adequately protected. We feel no such reasonable assurance. We find this all very unreasonable, and our protection very inadequate.

In terms of “routine” operations, NRC considers it reasonable to increase cancer rates in the US by 1/10th of 1%, due to the “routine” releases of radioactivity from operating atomic reactors, such as the restarted zombie reactor at PNP, as well as two SMR new builds. But it not reasonable, nor is it adequate protection, for there to have been dozens of thyroid cancers reported in Palisades Park Country Club alone, immediately adjacent to PNP on the south. There is a cancer epidemic in the US. PNP, and the entire nuclear power industry, contribute to this, with their emissions of hazardous radioactivity, and toxic chemicals, at each stage of the uranium fuel chain, including a restarted PNP zombie reactor, and two SMR new builds. Certain communities, such as PPCC, Covert Township, Benton Harbor, etc., bear a disproportionate burden, which is not reasonable, nor adequately protective. For the low income and/or people of color parts of these disproportionately impacted communities, that is also an EJ violation.

NRC and DOE are willfully blind to not see or acknowledge the unreasonableness and inadequacy of the protection, in regards to this EA’s “not significant” conclusions across the board in this EA. It should be withdrawn, an EIS/PEIS undertaken in its place, and truthfulness made the guiding star, not “Lies, Damn Lies, and Statistics,” and the unacceptable policy that “bag limits” up to a certain number are acceptable, and this equates to reasonable assurance of adequate protection. We disagree with that ghoulish notion.]

In addition to reviewing data from actively monitored emissions, the NRC staff reviewed independent data collect by Michigan EGLE. The Michigan EGLE runs an independent REMP (MEGLE 2016-TN10744) for all nuclear power plants within the State, including areas surrounding Palisades. This data is published from 1958 up to 2016 and includes environmental

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sampling of air particulate, air vapors, milk, surface water, and direct radiation monitoring (MEGLE 2014-TN10865). The data collected by Michigan EGLE for the majority of plant operations demonstrate that Palisades emissions are low and confirms submitted Annual Radioactive Effluent Reports for the same time frame are within regulatory limits.

[Why did the collection of sampling data end in 2016?! With PNP, Cook 1 & 2, and Fermi 2 still operating?! And what about research reactors in MI, as at colleges/universities/hospitals/in industry? Are any still operating? After all, emissions from all such reactors would represent cumulative effects, which should be addressed in an EIS/PEIS here, not a lower-level EA.]

The N&S Report (Holtec 2023-TN10538) provides the most recent (2018–2022) **average occupational radiation dose per individual**; the total effective dose equivalent (TEDE) was 0.225 roentgen equivalent(s) man (rem). The annual occupational TEDE limit is 5 rem, as outlined in 10 CFR 20.1201(a)(1).

[Well, that is for PNP workers — what about local area and broader regional residents?]

Around 2014, a one-month-long job, re: CRDM seal leakage replacement, turned into a scandal and fiasco. Average doses to nearly 200 workers were a whopping 2.8 Rem. Some of the exposed workers were women of child bearing age, which Entergy at first denied, but then quickly admitted to. This took place at a meeting between NRC and Entergy at Region III HQ in Lisle, IL. Beyond Nuclear's Kevin Kamps was in attendance in person to witness the meeting, while our intervening environmental coalition's expert witness, chief engineer at Fairewinds, Arnie Gundersen, took part by phone.

What made this scandal even worse is that PNP has the worst Operating Experience in the US industry re: CRDM seal leakage. The problem first appeared in 1972 — just one year into operations — and has never been solved since. In fact, it is why PNP was closed for good by Entergy on May 20, 2022, 11 days earlier than planned — because the latest CRDM seal leak took place that day, and it just wasn't worth the time and money (not to mention worker exposures to hazardous radiation) that would have been required, for just 11 more days of operations. The CRDM replacement job would have taken way longer than 11 days, for another thing.

Making the 2014 worker exposure incident all the worse was the fact that many workers were not wearing their radiation detection film badges correctly. Given that mistake, and the fact that the 2.8 Rem figure for the one-month-long job was an average across nearly 200 workers, it is very possible that some of the workers got much higher doses than 2.8 Rem.

Did any get more than 5 Rem? If not, since Entergy was given so much carte blanche to “do the math,” how can we be sure Entergy was telling the truth?

We incorporate by reference, as if fully rewritten herein, the following:

<https://archive.beyondnuclear.org/home/2015/1/9/192-entergy-palisades-workers-exposed-to-28-r-in-month-long.html>

<http://beyondnuclear.org/wp-content/uploads/2024/03/Lochbaum-Headaches-at-Palisades-CRD-seals-new-LG2-20100716-pal-ucs-brief-leaking-crd-seals-5.pdf>

And why is the allowable US worker dose up to 5 Rem per year, while internationally it is only 2 Rem/yr?!

Also provided in the N&S Report (Holtec 2023-TN10538) are the doses to a member of the public for the last full year of operation (2021), which were: 0.112 millirem (mrem) for whole body, 0.117 mrem for thyroid, and 0.522 mrem for other organs.

[That's starting really to add up!]

*0.112 mR
+0.117 mR
+0.522 mR
-----*

0.751 mR

That is approaching 1 Rem.

That is half an international worker dose limit for one year.

What about other radiation exposures to this same generic individual? From natural radiation, and other artificial sources, such as medicine, legacy pollution, and other reactors nearby — 2 reactors at Cook, 2 more SMRs at PNP in addition to the zombie reactor, so many more upwind and upstream in IL & WI, etc. Why isn't all this included in Cumulative Effects analysis? Radium contamination in Benton Harbor at Jean Klock Park, now a gated community and golf course with hiking trails that require elevated board walks, so hikers don't hike in radium contaminated soil. All these cumulative exposures, just in s.w. MI. NRC and DOE are not adequately accounting for them all.]

The average occupational radiation exposure TEDE dose for the operational years 2006 to 2021 ranged from 0.09 rem to 0.39 rem (NRC 2024-TN9915). These dose results confirm that Palisades was operating in compliance with 10 CFR Part 50, Appendix I, 10 CFR Part 20, and 40 CFR Part 190.

[How can this be, given the 2014 CRDM incident alone, described above, impacting nearly 200 workers? Are more "Lies, Damn Lies, and Statistics" being deployed here by DOE and NRC?]

The NRC staff investigated the reports of increased rates of cancer using data sources provided by the Michigan Department of Health and Human Services, such as the Centers for Disease Control and Prevention's National Environmental Public Health Tracking Network (CDC 2024-TN10845) and the University of Kentucky's Cancer Incidence and Mortality Inquiry System (University of Kentucky 2014-TN10851). The provided data included total cancer rates and thyroid cancer rates for Van Buren County, the counties surrounding Van Buren County, and the state of Michigan as a whole. This data was used in conjunction with annual effluent reports provided by the operators of Palisades and data collected through the Michigan REMP program.

Based on its review of this data, the NRC staff did not identify any higher incident rates of cancer, specifically for thyroid cancer in the counties around Palisades. This information is discussed in further detail in Appendix H, "Discussion of Cancer Risks at and around Palisades Nuclear Plant." While Palisades did have enforcement actions applied during the time period reviewed (NRC 2024-TN10751), no enforcement actions were related to the radioactive emissions control systems described in Section 3.11.1.1 of this EA.

[So is NRC hiding the truth about PPCC behind county-wide numbers? Diluting the cancer rate across the whole county?

What about the fact that most PPCC residents are only there in the warm weather? Are their cancers recorded in their other county/state of residence, but not in Covert Township, and/or Van Buren County, and/or the State of MI? Such clever manipulations are ghoulish "Lies, Damn Lies, and Statistics," concealing the truth rather than revealing it.

Compare these goings on to what Cindy Sauer revealed at Morris, IL: a local pediatrician, who also had extensive real estate holdings in the area, was caught concealing the truth about local pediatric cancer rates, and even pediatric cancer deaths. Most cancers cases and even death certificates got recorded in Chicago, not Morris, because rare childhood cancers required special medical offices in Chicago for treatment. The cause of death would be blurred, such as heart failure, instead of the cancer that caused it in the first place. This very same kind of thing happened after the Chornobyl nuclear catastrophe, under strict and secretive orders from the Politburo at the Kremlin, as revealed in the book by Alla Yaroshinskaya's 1995 book Chernobyl: The Forbidden Truth.

As former PSR national board president Jeff Patterson — who treated Chornobyl firefighters in Moscow, attempting to relieve their pain — put it, the nuclear power and nuclear weapons industries, and the human health harm from radiation they cause, has involved “Secrecy, Cover Up, and Minimization” from the get-go. As Dave Kraft, director of NEIS, has pointed out, “Secrecy, Cover Up, and Minimization” spells SCUM.

Such “Secrecy, Cover Up, and Minimization” seems to be at the heart of many of NRC and DOE's analyses and conclusions in this EA.]

Additionally, the State of Michigan Department of Health and Human Services, Department of Environmental Health provided the NRC staff with a letter sent to the township of Covert, Michigan on November 15, 2024 (MDHHS 2024-TN10866). The letter summarizes a review of the instances of thyroid cancer in Covert Township from 1985 to 2021. The number of recorded

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cases of thyroid cancer in permanent residents was 6, a number too low to conduct viable statistical analysis with other comparable locations. No temporal patterns were identified with regards to thyroid cancer for the location during the review.

[PPCC reports from 20, up to 50, thyroid cancer cases. Are they lying? Why would they do such a thing? Do NRC and DOE deny that there have been up to 50 cases of thyroid cancer diagnosed in PPCC?

What about those whose cases never get diagnosed or recorded, such as local residents who lack health care coverage, and simply die eventually, undiagnosed and untreated? NRC and DOE acknowledged that low income rates in Covert likely have meant inadequate health care services, didn't they?

NRC's and MI DHHS's finding of no statistically significant rate of thyroid cancer at PPCC seems to be due to methodological flaws, incuriosity, and laziness. Would NRC and MI DHHS rather not find elevated thyroid cancer rates at PPCC, because this would be an inconvenient truth? There should not be a single thyroid cancer diagnosis at PPCC, given its small population size. But there have reportedly been up to 50. This is a shockingly high number. And NRC and MI DHHS seem to be behaving like such a shockingly high number is normal, to be expected. Thyroid cancer is an exceedingly rare disease, except in cases — like at Chornobyl, Fukushima Daiichi, and perhaps PNP — where large-scale releases of Iodine-131 have taken place. I-131 is highly radioactive because of its short 8-day half-life, and can do tremendous damage — including cause cancer — if inhaled, or ingested.

Many PPCC residents are only there on occasion, such as during the warm weather months. So what is the thyroid cancer rate in the African American and low income population of Covert Township — these residents live there year round.

Tellingly, there is evidence of high thyroid pathology rates in the local area around Big Rock Point as well, where large-scale I-131 releases took place and have been documented.

It seems NRC and MI DHHS have fallen down on their jobs, in terms of protecting human health against the harmful radioactive releases from PNP and Big Rock Point. So they conveniently deny this inconvenient truth of high thyroid cancer rates, as clearly are present in PPCC.]

3.11.1.3 Environmental Impacts from the Resumption of Power Operation

Radiological impacts of normal operations are addressed in the 2006 SEIS (NRC 2006-TN7346), where the NRC staff noted that there would be no impacts of radiation exposures to the public during the renewal term beyond those discussed in the 2006 SEIS. Given that Palisades would be operated as before with no significantly different radiological environmental impacts, the NRC staff has determined that the environmental impacts of radiological effluent releases from the resumption of power operation at Palisades would be consistent with what was provided in the 2021 and 2022 REMP reports prior to the shutdown of operations in 2022 (Holtec 2023-TN10538), and therefore, would be NOT SIGNIFICANT. The operational impacts are minimized by compliance with radiation protection regulations in 10 CFR Part 20 (TN283), 10 CFR Part 50 Appendix I (TN249), and Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1910-TN654) created by the Occupational Safety and Health Act of 1970 (TN4453).

[There are so many engineers at NRC, and DOE, and yet they still seem unfamiliar with the concepts of corrosion and other forms of age-related degradation leading to more leaks, spills, etc., not to mention the intentional releases. These systems, structures, and components are not magical. They corrode over time and breakdown. Things fall apart over time.]

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The proposed Federal actions would not have an incremental cumulative effect on the design configuration, operational changes, or radiological monitoring at Palisades. The facility would return to the same operational state prior to decommissioning and would have the same level of impacts. The addition of SMRs, if pursued, must also meet the NRC regulatory requirements for effluent releases. Additionally, the combination of all nuclear power plants on the site and within 50 mi (80 km) of Palisades would be required to meet the regulations of 40 CFR Part 190 (e.g., maximum annual dose equivalent no greater than 25 mrem for whole body) (TN739)

[Is that per reactor, or for all 5 reactors combined — 3 at PNP, and 2 at Cook? Even that is not made clear here. Are the dry cask storage exposures in addition to what is admitted to/ accounted for above, as unclear as it is?]

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3.11.2 Nonradiological Human Health

Chemical Hazards: State and Federal environmental agencies regulate the use, storage, and discharge, and management of chemical spills at the Palisades site as outlined in the 2006 SEIS (NRC 2006-TN7346). Water treatment discharge and management are regulated by an NPDES permit, which is under renewal and discussed further in Section 3.4.2 of this EA. Occupational health impacts are managed through established industrial hygiene practices that comply with OSHA requirements (Holtec 2023-TN10538). Between 2018 and 2023, one reportable chemical spill occurred in September 2020, when a leak from a condensate storage tank exceeded the threshold for hydrazine (reportable quantity of 1 lb [0.45 kg]) and was reported to the state of Michigan (Entergy 2021-TN10707). The quantity of hydrazine released (2.7 lb [1.2 kg]) was not significant enough to cause any human health effects

[Hydrazine is ultra-hazardous. And yet Holtec has requested MI EGLE give it permission, in its NPDES, to release large amounts into Lake Michigan. What about the many other toxic chemicals to be used at the restarted PNP, and at the SMR new builds, such as other biocides in addition to hydrazine. What will be the human health and ecological impacts of this? NRC and DOE seem willfully blind to conclude there will be no significant impacts. They have done hardly a look, rather than a hard look. An EIS/PEIS is required.]

Microbiological Hazards: As described in the 2024 LR GEIS (NRC 2024-TN10161), microbiological hazards occur when workers or members of the public come into contact with disease-causing microorganisms, also known as etiological agents. As described in the N&S Report, the Palisades' cooling system does not discharge to a small river; therefore, microbiological public health hazards are not applicable to Palisades (Holtec 2023-TN10538). Microbiological hazards to plant workers are applicable to Palisades. As described in 2024 LR GEIS, nuclear power plant workers can be exposed to *Legionella* spp. when performing cooling system maintenance through inhalation of cooling tower vapors because these vapors are often within the optimum temperature range for *Legionella* spp. growth. In the N&S Report, occupational health impacts are managed through established industrial hygiene practices that comply with OSHA requirements (Holtec 2023-TN10538). In the 2006 SEIS (NRC 2006-TN7346), NRC concluded that there would be no impacts of microbiological organisms during the license renewal term due to potential impacts being controlled by continued application of industrial hygiene practices.

[What about PPCC and Van Buren State Park — lots of folks swimming or wading, as well as boating and fishing, as well as beachgoing, in or near the Lake, in very close proximity — the PNP cooling towers are immediately adjacent to PPCC — are some cabins continually exposed to cooling tower plume fallout? Kevin Kamps once experienced very thick “pea soup” fog at Van Buren State Park. When he asked the park ranger if the fog was natural, or artificial cooling tower plume fallout from PNP, the park ranger said they did not know for sure. Arnie Gundersen, chief engineer of Fairewinds, has raised related concerns in his expert witness declaration testimony in this very ASLB proceeding, per above.]

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Physical Hazards:

There are no Federal standards limiting exposure to electromagnetic fields from power lines in the United States.

[Why not?! Shouldn't there be? Isn't this another cumulative effect? Isn't this cumulative effect being effectively ignored by NRC and DOE? What about the cumulative effect of nearly doubling the transmission of nuclear mega-wattage with the addition of two SMR-300s — from 800 MW-e currently at the zombie reactor, to 1,400 MW-e if and when the two SMR-300s fire up?]

Speaking of electricity at PNP, in Sept. 2012, the near-electrocution of a worker in the control room during a job also led to the loss of half the power in the control. It also very nearly inadvertently activated the ECCS. This would have been particularly dangerous, as the ECCS could cause pressurized thermal shock, and through-wall fracture, of the PNP reactor pressure vessel, the worst embrittled in the US, and perhaps the world. The NRC gave this incident a Yellow Finding. It should have been a Red Finding.]

As described in detail in the 2024 LR GEIS (NRC 2024-TN10161), noise is an unwanted or unwelcome sound generated by various sources. According to Holtec's N&S Report, the nearest residence is approximately 0.5 mi (0.8 km) to the southwest of the Palisades site (Holtec 2023-TN10538). Noise measurements for the Palisades site are unavailable; however, the cooling towers that were replaced in 2012 and 2017 produce a maximum sound of 90 A-weighted decibel at 3 ft (0.9 m) when operational. ***As the Palisades site is surrounded by sand dunes and vegetation and most equipment is inside the buildings, noise generation at Palisades is mitigated (NRC 2006-TN7346). [Emphasis added.]***

[PPCC residents have reported otherwise. Pressurized steam jet release roars, sirens, and/or alarms, etc., can make prolonged blaring noise at PNP, which are very audible at the PPCC, immediately south. This DOE and NRC statement above is such a whitewash. It so downplays the lived experience of PPCC residents. Besides, emergency sirens had better be audible by PPCC residents, eh, so that they know when to evacuate for their lives, if PNP has one or more meltdowns?]

As mentioned above by NRC and DOE in the EJ section of this EA, the lack of access to transport re: emergency evacuation, especially for low income in the area — such as in the African American population of Covert Township, is quite alarming, and dangerous. Leading up to, during, and in the aftermath of Hurricane Katrina, many Black and/or low income residents in New Orleans, LA had no access to transport out of the low lying city, to safer refuge elsewhere. Thus, a very large number died. And ever larger numbers suffered in the aftermath, such as being stuck at the Superdome, with little food, water, or other necessities. The first 50 deaths among residents near Fukushima Daiichi in Japan were senior citizens, in hospitals and nursing homes, who were abandoned in place, and perished from their exposures, hypothermia, dehydration, etc. over the course of days. Are PNP hospitals, nursing homes, etc. any better prepared for a fast-breaking catastrophe unfolding at PNP, than were these Japanese facilities?

And as Kevin Kamps from Beyond Nuclear asked during the November 20, 2024 NRC/FEMA meeting at Lake Michigan College in Benton Harbor, MI, about restoring the emergency plan at PNP — that never should have been terminated in the first place — what about pets? What about domestic farm animals, such as cows at hundreds of dairies in Van Buren and neighboring counties? Are they to be evacuated in the event of a meltdown? Or will they simply be abandoned? As depicted in the HBO historic drama "Chernobyl," the countless dogs

abandoned by their owners because they were not allowed to bring them onto emergency evacuation buses to shelters, were eventually simply shot to death by military recruits, ordered to do so as part of the Chornobyl liquidation. It was horrific.

Likewise, at Fukushima, entire herds of domestic livestock were left behind, to die from exposure, and lack of water and food. One farmer stayed behind to feed and water as many as he could, despite his own risk of exposure to radioactive contamination in the area.]

Speaking of loud, jarring sounds, the pro-PNP restart and SMR bandwagon is an ear-sore. It is an echo chamber — NRC, DOE, Gov. Whitmer, local municipalities and the Chamber of Commerce, have created an echo chamber of Yes Men, singing from Holtec's song sheet. But it's a siren song — the entire region may crash against the rocks because of it, if the worst happens. We hope and pray it doesn't, but fear it just might.]

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3.12 Waste Management

[Compare NRC's whitewashing/greenwashing to the radioactive waste building spill we cited in our Feb. 24, 2021 intervention petition and hearing request that sought to block Holtec's takeover of PNP in the first place, supposedly for decommissioning purposes only. We did not trust Holtec, and for good reason. We were proven right on Sept. 9, 2022, when Holtec — alongside Gov. Whitmer — announced it would be the company undertaking the unprecedented PNP restart (likely because no other company is that crazy, to take those kind of risks. But Holtec is...). We later learned that as early as 7/5/22, Holtec had already applied to DOE for many billions of dollars in bailouts, for the restart scheme.

We incorporate by reference, as if fully rewritten here, this press release, web posting, and all related documents accessible by hot links here:

<https://beyondnuclear.org/5775-2/>]

Mixed waste, regulated under Resource Conservation and Recovery Act of 1976, as amended (Resource Conservation and Recovery Act of 1976-TN1281) and Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.-TN663), include both radioactive and hazardous waste (EPA 2019-TN6956). According to Holtec's N&S Report (Holtec 2023-TN10538), **Palisades has generated minimal mixed waste from 2018 to 2023. [Emphasis added.]**

[Really? How's that? Of course, with permanent shutdown on May 20, 2022, and little to no decommissioning work from June 28, 2022 (when Holtec took over, till now), it makes sense that minimal mixed waste would be generated. But what about all the way back to 1971? And what about all the way out to 2051 at the restarted zombie reactor, as well as the SMR new builds, from 2030 to 2070, 2090, or 2110? This EA is supposed to concern itself with cumulative effects, not parroting Holtec propaganda.]

Where did past PNP mixed wastes get dumped? Where will future PNP mixed wastes get dumped? In its Dec. 2020 PSDAR, Holtec indicated that all so-called "low-level radioactive wastes" would get dumped at WCS in TX, which happens to be very near, or even directly above, the Ogallala Aquifer. The Ogallala is vital to eight states, for drinking and irrigation water.

Holtec's PNP LLRW dumping plans threaten that. WCS is also located in a Latino majority area of Andrews County, west Texas, literally immediately adjacent to the New Mexico border. New Mexico is majority minority, Latino and Indigenous. So Holtec's LLRW dumping plans are an EJ violation on their face. But so too are Holtec's highly radioactive waste dumping plans. Holtec wants to open the world's single largest high-level radioactive waste dump, in southeastern NM. Interim Storage Partners wants to open another large-scale HLRW dump, 40 miles east, at WCS. So the HLRW dumping plans are also EJ violations.

*As Dr. Marvin Resnikoff wrote in his 1980s book *Living Without Landfills*, all the LLRW dumps ever opened in the US have leaked radioactivity into the greater environment, over time.]*

Section 2.1.5 of the 2006 SEIS (NRC 2006-TN7346) provides a description of the nonradioactive waste generation and waste management at Palisades prior to start of plant decommissioning. Generated nonradioactive waste includes **chemical, biocide**, sanitary,

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universal, site stormwater runoff, and lubrication oil waste. Palisades has a nonradioactive waste management program and procedures to handle and dispose of this nonradioactive waste in accordance with Federal, State, and local regulations. Solid wastes are collected and stored onsite, then shipped offsite for disposal.

[This is still pretty bad! What about THOSE dumpsites? Holtec wants to return PNP to its toxic culture of decades past. Even sanitary waste will be bad, with up to 1,600 workers on site during preparations for restart, and then 600 workers on-site, after restart.]

However, in 2015, 2017, and 2019, Palisades has also been classified as large quantity hazardous waste generator due to occasional episodic events (MEGLE 2021-TN10753). [Emphasis added.]

[What were those? Why did NRC and DOE not provide any specifics? The burden is on the concerned public to track down those specifics on our our? What are DOE and NRC trying to keep as quiet as possible? Yet again, PNP, like nuclear power in general, is not "clean," far from it. So Michigan's "clean" energy law including nuclear power is a tragic, fatal mistake.]

Palisades has typically been classified as a small or very small quantity hazardous waste generator. **However, in 2015, 2017, and 2019, Palisades has also been classified as large quantity hazardous waste generator due to occasional episodic events (MEGLE 2021-TN10753).** The NRC staff expects that Holtec would continue to implement plans and procedures for management of its waste types including an ***asbestos abatement or human-made mineral fiber removal plan*** (HDI 2024-TN10670: RAI-WM-1). **[Emphases added.]**

[Again, per just above: What were those "large quantity hazardous waste generator...episodic events"? Why did NRC and DOE not provide any specifics? The burden is on the concerned public to track down those specifics on our our? What are DOE and NRC trying to keep as quiet as possible? Yet again, PNP, like nuclear power in general, is not "clean," far from it. So Michigan's "clean" energy law including nuclear power is a tragic, fatal mistake.]

Also, re: asbestos abatement, did Entergy do a good job of this in its last several years of ownership/operations at PNP? Because Entergy seemed to just be running PNP into the ground for several long years, getting waivers and exemptions galore from NRC for even safety-related inspections, maintenance, etc. Also, given the destruction of QA records and even programs, how robust is Holtec's current asbestos sample collection records and documentation? Are Holtec PNP workers taking the proper safety precautions to protect their own health, as well as that of nearby members of the public? We ask because Holtec has been busted at its other decommissioning fleet sites (although Holtec is no longer decommissioning PNP any decade or century soon!), dumping asbestos in improper dumpsites, handling it in improper ways, transporting it in improper ways, etc., putting its own workers, as well as the general public, at acute and chronic (when the improper dumpsite leaks) risk from a very hazardous substance, namely asbestos.]

Procedures, such SPCC-PIPP and the SWPPP

[the word as is missing in the sentence above: such as]

Procedures, such SPCC-PIPP and the SWPPP are in place for nonradioactive waste management and for the minimization and management of liquid chemical spills. With respect to unplanned, nonradiological releases, the NRC staff's review of the annual nonradiological environmental operating reports over the period of 2018 through 2023 found one documented instance of a reportable chemical spill in September 2020, which is described in Section 3.11.2.1 of this EA. **In the unlikely event of generation of a medical incident and generation of medical waste, the State of Michigan Medical Waste Regulatory Program provides procedures for managing medical waste, which would typically be handled by the supporting medical facility. [Emphasis added.]**

[As unlikely as NRC and DOE would like to make this out to be, a radioactively contaminated injured worker at Cook, many years ago (injured by a crane rigging collapse), led to snafus galore, endangering his own co-workers, the ambulance drivers, EMTs, doctors and nurses at the ER, etc. All because of the incompetence of the Cook NPP, as regulated by NRC.

Also, the testimony to MPSC in 2017 in Lawrence re: the frothing discharge into Lake MI that so traumatized that grandmother over the safety of her grandchildren comes to mind again. See above.

NRC and DOE try to talk a good line here, that operations at PNP (and Cook NPP) are under control at all times — re: toxic chemicals, radioactivity, and other hazardous substances and other workplace dangers — but it ain't so.]

As discussed in Section 3.4.1 of this EA, if sediments are removed from the mixing basin as a result of the sediment level evaluation, removal would be performed under the appropriate permits, and sediments would be tested for radioactivity and other contaminants prior to disposal offsite. Mixed waste production may result from the cleaning and removal of any residual contaminants that accumulate in the primary coolant system. Holtec maintains plans

and procedures for management of radioactive and nonradioactive waste and plans to use existing processes for preparation of reauthorization activities resulting in waste generation (HDI 2024-TN10670: RAI-GEN-1, RAI-WM-1). Holtec estimated the total amount of radioactive wastes generated during refueling activities as part of the preparations for the resumption of power operations as 44,520 ft³ (1,260 m³) of Class A waste, 240 ft³ (7 m³) of Class B waste, and 1,770 ft³ (50 m³) of Class C waste (HDI 2024-TN10670: RAI-WM-1).

[Holtec recently did a chelating agent flush of either the primary loop, the RPV, or other radioactively contaminated areas. Which SSCs were flushed with chelating agent? Where was this mixed waste dumped? What are/were the impacts of this process on-site, and dumping off-site, including transport risks/impacts in between the two?]

Future LLRW and HLRW — newly generated — would NOT be generated, if Palisades remains shut — there would of course still be all the decommissioning wastes, already generated HLRW, etc. Holtec said in 2020 PSDAR that ALL LLRW is going to WCS — but is that even true? What about the impacts to the Ogallala and EJ, at WCS and ISP in TX, and Holtec in NM, re: CISFs for HLRW? And what are the health, safety, and environmental impacts of transporting all this radioactive waste, from PNP to these dumpsites?

Re: that chemical chelating flush already performed, mentioned above — now the rad. contamination is “wearing roller skates,” per a metaphor used by Kay Drey. Work-at-risk, like other pre-permitted work activities mentioned in passing by Holtec’s outside counsel at the ASLB pre-hearing oral arguments on Feb. 12, 2025? It seems NRC is fine with Holtec just doing whatever it wants, even while this EA is still only in Draft form. The tail wags the dog. Holtec is in charge, and tells NRC what to do. Actually, Holtec and NRC are business partners — they are in it together. This is collusion. This is complicity. The illusion- and pretense-only of safety and environmental regulation and health protection. This is the root cause of nuclear catastrophes like Fukushima, the Japanese Parliament concluded in 2012. Such collusion exists in spades at Palisades, to all of our peril.]

Based on information in the review of Holtec’s N&S Report, (Holtec 2023-TN10538), Holtec’s response to NRC’s RAIs (HDI 2024-TN10670: RAI-WM-1), and public scoping (Appendix B to this EA), the NRC staff has determined the proposed Federal actions would not alter radiological or nonradiological waste management processes currently in place at Palisades. Therefore, the NRC staff determined that radioactive and nonradioactive waste management impacts related to the activities from the preparations for resumption of power operations would be NOT SIGNIFICANT.

[More than 900 MT of HLRW stored on-site is already an EXTRA LARGE IMPACT! Restart would add 15 MT per year, from 2025 to 2051. SMRs would generate 2 to 30 times the amount of HLRW, per unit of electricity generated, than the current reactor, per Macfarlane and Ewing a couple years ago (President Obama’s NRC and USNWTRB chairs).]

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3.12.3 Environmental Impacts from the Resumption of Power Operations

Hazardous waste generation is not expected to increase during resumption of power operations.

As described in the N&S Report, Palisades is expected to continue as a small or very small hazardous waste generator upon renewed operations, but **certain events such as cleaning of storage tanks may result in generation of large quantities of hazardous waste** (Holtec 2023-TN10538).

[So it will be small, unless it's large? This is nonsensical!]

See our questions about the chelating flush Holtec already performed, per above. Why were no details on that provided in the EA? Specifics, including comprehensive impact analyses, looking backwards (the past chelating flush, already carried out) and forwards (future chelating flushes, in the future) in time should be performed.]

In addition, the NRC staff have determined that radioactive and nonradiological waste management impacts analyses in the 2024 LR GEIS are relevant to the proposed Federal actions, including the resumption of power operations at Palisades. The 2024 LR GEIS (NRC 2024-TN10161) describes the environmental effects of reactor operations on radiological and nonradiological waste management as a result of license renewal. As explained in the 2024 LR GEIS, continued reactor operations and refurbishment activities at nuclear power plants have had little or no environmental effect on waste management.

Based on the review of the N&S Report (Holtec 2023-TN10538) and Holtec's responses to NRC's RAIs/RCIs, the waste management affected environment at Palisades has not changed to any significant degree since the 2006 SEIS (NRC 2006-TN7346). Based on NRC staff's review of the N&S Report and conclusions of the 2006 SEIS and the 2024 LR GEIS, NRC staff concludes that radioactive and nonradioactive waste management impacts from the resumption of reactor power operations would be NOT SIGNIFICANT.

[Clearly, NRC and DOE would not recognize an Extra Large/Major Impact if it...introduced itself to them on the street — or in this case, on the beach — for the umpteenth time. Past radioactive waste generation has been a large impact. Future radioactive waste generation will exacerbate this large impact, for many decades to come. 900+ tons of HLRW on the Lake Michigan shore, to grow by 15 MT per year from 2025 to 2030, and then at an even greater rate than that once the SMRs begin operating, will significantly exacerbate an already large impact. It already puts the Great Lakes and Great Lakes State at existential risk, a risk that will only grow even larger in the future.]

3.12.4 Cumulative Effects

Appendix G, Table G-1 of the EA identifies past, present, and reasonably foreseeable projects that could cumulatively contribute to the environmental impacts of the proposed Federal actions.

No significant design configuration or operational changes are expected to impact waste management as a result of the proposed Federal actions. The facility would return to the same operational state prior to decommissioning and would have the same level of impacts as concluded in the 2006 SEIS. The addition of SMRs, if pursued, would be required to meet the **NRC regulatory requirements for safe handling and processing of generated waste.**

Additionally, the combination of all nuclear power plants on the site and within 50 mi (80 km) of Palisades would be required to meet the applicable 10 CFR Part 20 and Part 72 regulations for waste management. Therefore, the NRC staff determined that the incremental effects of the proposed Federal actions related to waste management when added to the effects of other past, present, and reasonably foreseeable actions would not have significant cumulative effects

[Radioactive waste generation ad nauseum, a curse on all future generations, for a little electricity, the fleeting byproduct — per song lyrics by Victor McManemy and a talk by Michael Keegan — is a major negative impact. NRC regulatory requirements have failed numerous times. The cask dangle in Oct. 2005 is but one example of a close call with catastrophe. SMR operation would be a significant operational change — 2 to 30 times the amount of HLRW will be generated at them, as compared to the same megawatt-hours generated at the restarted zombie reactor, due to loss of economy of scale. Of course, accumulation of more and more HLRW, year after year, is a large cumulative effect. DOE and NRC are willfully blind to all this.]

3.13 Uranium Fuel Cycle and Transportation

[U mining and milling impacts on Indigenous Nations are major and large; HLRW barges on Lake MI will be too; EJ impacts of dumps] are also major and large.]

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The impacts to the uranium fuel cycle and subsequent transportation of fresh nuclear fuel and spent nuclear fuel (SNF) and radioactive waste during operation would be consistent with those described in the 2006 SEIS (NRC 2006-TN7346), the 2024 LR GEIS (NRC 2024-TN10161), and the Continued Storage GEIS (NRC 2014-TN4117), along with Evaluation of Accident Tolerant Fuels (NRC 2024-TN10333). These documents describe the impacts bounded by Table S-3 and Table S-4 of 10 CFR Part 51 and impacts of SNF at-reactor and away-from-reactor storage. The documents listed above demonstrate that **continued reactor operations at nuclear power plants have had little or no environmental effects due to the uranium fuel cycle, SNF management, and transportation of fuel and waste.** No additional nuclear plant-specific analysis is required unless any new and significant information is identified.

[Tell that to the Red Water Pond Road Community (a Navajo/Diné community at Church Rock, near Gallup, NM; the Skull Valley Goshutes in UT; the Western Shoshone in NV; etc. NRC and DOE's statement above is sociopathic, if not psychopathic, given how often this abusive behavior pattern is repeated by the nuclear establishment. The Red Water Pond Road Community has been devastated by the July 16, 1979 uranium mill tailing flood down the Rio Puerco River, of large amounts of toxic chemical and radioactive wastewater. Against, the only way NRC and DOE can say such a thing above, is that they do not consider these Indigenous Nations significant enough to take into consideration at all.]

3.13.4 Cumulative Effects

Appendix G, Table G-1 of EA identifies

[the word the needs to be added above: of the EA.]

3.13.4 Cumulative Effects

Appendix G, Table G-1 of EA identifies past, present, and reasonably foreseeable projects that could cumulatively contribute to the environmental impacts of the proposed Federal actions. No significant design configuration or operational changes are expected to impact these resource areas as a result of the proposed Federal actions. The facility would return to the same operational state prior to decommissioning and would have the same level of impacts. Fuel-cycle impacts would occur not only at Palisades but also at other locations in the United States. In addition to fuel-cycle impacts from the proposed SMRs, this cumulative analysis also considers fuel-cycle impacts from Palisades. The fuel-cycle impact of the proposed SMRs would be similar to that of Palisades. There is one other nuclear power plant within 50 mi of Palisades.

The addition of SMRs, if pursued, would result in an increased impact, but would remain bounded by the impacts described in 10 CFR Part 51 Tables S-3 and S-4 (TN10253). For example, a number of fuel-management improvements have been adopted by nuclear power plants to achieve higher performance and to reduce fuel and separative work (enrichment) requirements. The cumulative effects of reauthorization and subsequent operation are expected to be consistent with conditions described and analyzed in the 2006 SEIS for all nuclear power plants on the site and within 50 mi (80 km) of Palisades. Therefore, the NRC staff determined that the incremental effects of the proposed Federal actions related to uranium fuel cycle and transportation of nuclear fuel and radioactive waste when added to the effects of other past, present, and reasonably foreseeable actions would not have significant cumulative effects.

[Cumulative effects, accumulating risks, such as highly radioactive waste piling up. Just the quantity alone increasing is a major, large impact, and huge risk. But NRC and DOE don't even acknowledge that. See irradiated nuclear fuel storage and transport risk comments, above.]

IF SMRs are pursued? Holtec is full steam ahead on that one. They just held yet another high profile press conference last week with Hyundai of South Korea, their SMR partner. The partners announced, yet again — not for the first time — that PNP is their top target for SMR deployment. NRC is complicit and colluding on this SMR rush job.

Three reactors instead of one is a new risk — of domino effect, multiple meltdowns. The site is only 432-acres in size. The zombie reactor has severe and worsening age-related degradation breakdown risks. The new SMRs would have break-in phase risks. The tiny site would host the extremes of the risk spectrum.]

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3.14 Postulated Accidents

The impacts described in the 2024 LR GEIS summarize the estimated impacts of nuclear power plants within the United States and indicate the environmental impacts of design basis accidents (DBAs) and the environmental impacts from the probability-weighted consequences of severe accidents are generic issues with a SMALL environmental impact.

[Probability-weighted? Compare Fukushima's probability, and actual real world consequences. Our expert, Arnie Gundersen of Fairewinds, pointed out that the probability of Fukushima Daiichi having a triple meltdown was 1 in a million X 1 in a million X 1 in a million, which equals 1 with 18 zeroes after it. But it happened. 1 over 1. 100%. So what are the chances PNP will have 1, 2, or 3 meltdowns, depending on if the zombie reactor is restarted, and whether 1 or 2 SMRs get built there? Well, that risk is already high, and will increase in likelihood, as age-degradation worsens at the zombie reactor, and as break-in phase bugs in the design, and inexperienced operator error, work themselves out, perhaps the hard way, as happened at the Fermi 1, Three Mile Island 2, and Chornobyl 4 meltdowns. Increasing these risks is Holtec's inexperience. It has never operated a reactor, nor built a reactor. Holtec's incompetence, greed driven short cuts on safety, corruption, and even criminality, increase the risks even more. It is quite incredible that NRC, DOE, and Gov. Whitmer have partnered with a company like Holtec on such a high risk, insanely expensive (for the public) misadventure like this, at the lemon PNP, which is now a jalopy to boot.]

NRC, DOE, Gov. Whitmer and Holtec's are engaged in magical thinking — and American exceptionalism gone wrong. PNP doesn't get a pass from the laws of physics, just because it's in Michigan. There is no magic wand to wave once a meltdown is underway.]

The impacts described in the 2024 LR GEIS summarize the estimated impacts of nuclear power plants within the United States and indicate the environmental impacts of design basis accidents (DBAs) and the environmental impacts from the probability-weighted consequences of severe accidents are generic issues with a SMALL environmental impact. Palisades previously considered SAMAs on a site-specific basis in the 2006 SEIS. The NRC staff reviewed Palisades current site-specific information and found no new information that would change either the generic SMALL impact determinations for DBAs and severe accidents in the 2024 LR GEIS or the determination of SMALL impacts for DBAs and severe accidents in the 2006 SEIS for Palisades (HDI 2024-TN10669: RCI-A-1). Holtec confirmed there would be no changes to the design basis which would require a reevaluation of the SAMA analysis (HDI 2024-TN10669:RCI-A-1). Additionally, the NRC has stated in Table B-1 of 10 CFR Part 51 (TN10253) Appendix B, that, so long as a previous SAMA analysis has been performed, SAMAs do not warrant further plant-specific analysis because the demonstrated reductions in population dose risk and continued severe accident regulatory improvements substantially reduce the likelihood of finding cost-effective significant plant improvements.

[In other words, we've just got to live with the risk. Put your big boy pants on, a Fukushima catastrophe health impact denialist once famously said — as children sicken and even die from Fukushima's escaped radioactivity. But oh, trust us, probably nothing will go wrong. Or too wrong. Or so wrong that you can't handle it. Besides, Holtec needs to make its filthy fortune, dontcha know?! This kind of thought process, and decision making, not only betrays the public trust, but is dangerous and unacceptable.]

[Reducing meltdown risks is not worth the cost — since the area and regional population are insignificant anyways — why bother? Not worth it. Is this NRC and DOE's thinking here?]]

Holtec confirmed that the 2024 LR GEIS generic findings for Severe Accidents and SAMAs will remain applicable to Palisades during resumption of power operations for the duration of the RFOL(HDI 2024-TN10669: RCI-A-1). The current updated model of record for internal event and internal flood risk for Palisades is $3.22 \times 10^{-5}/\text{yr}$, which is within the 2024 LR GEIS, Revision 2 Table E.3-2 SAMA CDF range of $3.9 \times 10^{-6}/\text{yr}$ to $5.6 \times 10^{-5}/\text{yr}$ for pressurized water reactors and is a reduction over values used at the time of Palisades license renewal ($4.05 \times 10^{-5}/\text{yr}$). Both internal and external events were evaluated in the 2006 Palisades SEIS.

[Radioactive Russian roulette on the shore of Lake Michigan, in Michigan's agricultural breadbasket, and depending on the wind direction — potentially upwind of several of Michigan's biggest cities: Grand Rapids; Muskegon; Kalamazoo; Lansing; Ann Arbor; Detroit; and many others. Certainly upstream of Michigan's entire Great Lakes shoreline in the Lower Peninsula. All of this and more would be put at high risk if PNP restarts, and SMRs get built and operated.]

Actually, at the August 2000 Nuclear-Free Great Lakes Action Camp, during which a press conference and rally was held on the beach of Van Buren State Park, very close to PNP, crosses bearing the names of area towns, cities, counties, etc. were posted on the beach, symbolizing all that could be lost in MI, IN and beyond, if PNP melted down. The idea — and the actual work of putting the crosses and banners together — came from Laura Bulow, who tragically died before the Action Camp, so we dedicated it to her memory and remarkable spirit.

See photos of these crosses on the right hand margin of this website:

<http://archives.nirs.us/reactorwatch/licensing/palisades.htm>

We incorporate by reference as if rewritten herein that entire website. It contains many relevant documents, that argue strongly against PNP's restart, and SMR new builds, in 2025, just as we argued against PNP's continued operations decades ago.

What if rolling the dice enough times they come up snake eyes?

What is the psychiatric disorder where high risk taking accelerates as time goes on — doubling down. We've certainly heard of adrenaline junkies, but this is with a radioactive twist.]

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Although the treatment of external events in the 2006 SEIS was limited by the unavailability of an external event PRA, the NRC staff accounted for external event risk by increasing the estimated risk from internal events by a factor of 2 to account for risk from both internal and external events.

[the word of is missing: the unavailability OF an external event PRA]

[Safety improvements and upgrades are not cost-beneficial? We are not worth any such costs? Holtec's benefits, its profits, its bottom line, cannot be challenged, it seems. Why are DOE and NRC colluding with Holtec? This is not right. It is a betrayal of the public interest. It is dangerous, as shown by the Fukushima Daiichi catastrophe, which the Japanese Parliament concluded was caused by just such collusion. There is such collusion in spades at Palisades, which puts us all in dire peril.]

In 2015, our expert witness, Arnie Gundersen of Fairewinds, penned an essay about the risks of a nuclear catastrophe on the Great Lakes shore, as at PNP. We incorporate it here by reference, as if fully rewritten herein:

<https://www.fairewinds.org/demystify/downstream?rq=downstream>

On September 9, 2019, the Mitigation of Beyond-Design-Basis Events (MBDBE) rule (10 CFR 50.155; TN249) became effective. This rule primarily addresses mitigation strategies for a wide range of potential extreme events, including seismic events, fire, flooding, and other natural phenomena, requiring nuclear power plants to have plans in place to maintain core cooling, containment integrity, and spent fuel pool cooling even when facing events beyond their design basis, including large-scale natural disasters. If the NRC's proposed actions are approved and the 10 CFR 50.82(a)(1) certifications are withdrawn, Palisades will again be required to comply with 10 CFR 50.155 (TN249).

As a result of the NRC's ongoing safety oversight and updates to NRC regulatory ***requirements*** the overall risk of a severe accident has been reduced. Because the NRC's regulations and safety oversight have provided additional severe accident mitigation and have further reduced the risk profile of operating reactors since the Palisades SAMA analysis in the 2006 SEIS, further SAMA analyses would be unlikely to find any cost-effective significant plant improvements, as discussed in the 2024 LR GEIS (NRC 2024-TN10161). **[Emphasis added.]**

[SAMA benefits — prove you are worthy — NRC doesn't think we, the public, are worthy, ever]

[radioactive radiogenic conjoined twins? That is, the words requirements and the need a space between them.]

Based on information in the review of Holtec's N&S Report (Holtec 2023-TN10538), Holtec's response to the NRC's RCI (HDI 2024-TN10669: RCI-A-1), public scoping (Appendix B to this EA), and that the published impacts from postulated accidents are considered bounding, the NRC staff have determined the proposed Federal actions would not alter the previously determined impacts from design basis accidents and severe accidents, or the previous SAMA conclusions for Palisades in the 2024 LR GEIS (NRC 2024-TN10161); and therefore the environmental impacts of postulated accidents of the proposed Federal actions would be NOT SIGNIFICANT.

[how do these SAMAs compare to CRAC-II of 1982? See our CRAC-II related comments, above.]

3.15 Decommissioning Impact Evaluation

This section describes the environmental impacts associated with the permanent cessation of

power operations and the return to decommissioning of Palisades at a future date. All operating nuclear power plants will permanently cease power operations and be decommissioned at the end of their operating life when a decision is made to cease power operations.

[Holtec acquired PNP in the first place through a bait and switch trick, a con job, promising decommissioning but then announcing restart and SMR new builds instead. Given the various forms of fraud involved, Holtec should be tried in a court of law on various charges, rather than allowed to pursue its nefarious schemes with its ill-gotten PNP site. Also, anything Holtec has to say re: decommissioning is not to be trusted or believed, ever again. Same applies to NRC NRC has belatedly acknowledged that Holtec has misspent Decommissioning Trust Funds at PNP, including on the restart scheme. But whereas NRC acknowledged some \$53,000 in such misspending, we have alleged tens to hundreds of millions of dollars in such misspending. Since NRC is incapable or unwilling to do anything about this ongoing illegality, the FBI and IRS should send investigators in to get to the bottom of Holtec's nefarious behavior. DTFs are tax-exempt, but Holtec is using the funds for profit-making purposes — the reactor restart — so its tax-exemption should be revoked, and criminal charges should be brought against the company for its law breaking.]

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As discussed in Section 1 of this EA, Palisades ceased operations and removed fuel from the reactor in 2022. Prior to cessation of power generation activities and removal of all fuel, Holtec submitted a PSDAR to NRC (Holtec 2020-TN10539), in accordance with 10 CFR 50.82(a)(4) (TN249), to outline the proposed decommissioning activities and describe potential associated environmental impacts. In the PSDAR submission, Holtec concluded that the environmental impacts associated with the planned Palisades site-specific decommissioning activities would be bounded by appropriate, previously issued environmental impact statements, including:

[There again, the Holtec PSDAR was a lie, and a big part of the con job. It is worthless.]

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4 CONCLUSIONS

This EA describes the environmental review conducted by NRC and DOE LPO staff for evaluating the environmental effects of granting the licensing and regulatory requests necessary

to reauthorize power operations at Palisades through March 24, 2031, which is the end of the current operating license term under the Palisades RFOL. DOE LPO acted as a cooperating agency on this review.

[Funny — NOT! — no mention of the \$1.52 billion loan guarantee here. Also funny — NOT! — that DOE LPO announced finalization of the loan guarantee at almost the exact same time, or even a bit after, the steam generator degradation extent was revealed, and weeks after the problem had been red flagged by the NRC — PNO and Summary of Conference Call — in Sept. 2024. How could DOE LPO do that, given the red flags?! Isn't there a safety criteria? Kevin Kamps of Beyond Nuclear warned DOE LPO that NRC's word on safety was worthless and could not be trusted, at the mtg in Benton Harbor on July 11, 2024.]

The purpose and need for these proposed Federal actions are to provide an option for **clean energy baseload power** generation through the current licensing term of March 24, 2031 (see Section 1.2 of this EA).

[Well the purpose and need have been violated then, because PNP is not clean energy. It is also not baseload. After all, it has been shut down for nearly 3 years — it has not generated a single kilowatt-hour of electricity that entire time. This long term shut down should be included in any capacity factor determinations going forward, if it ever restarts. This must be added to the very poor capacity factor figures for PNP from the 1970s. In fact, David Lochbaum, former director of the nuclear safety program at UCS (now retired), did a comparison of 105 operating reactors in the US, and ranked PNP 81st out of 106 reactors compared on that listing. That is, it is one of the worst performing reactors in the country, if its overall and entire record is compared to those of other reactors. We incorporate by reference, as if fully rewritten herein, Lochbaum's analysis showing this poor ranking for PNP, as compared to other operating reactors in the US, here:

<http://beyondnuclear.org/wp-content/uploads/2024/05/5-9-24-Lochbaum-working.xlsx-ROP-Action-Matrix-Column-Ratings-12-2000-thru-12-2023-1.pdf>

Thus, Nick Culp, chief Holtec spokesman at PNP, should really stop referring to PNP as a top performer in the industry, because that is a big lie. If Culp is referring to its last years of operations before being shut down for good on May 20, 2022, he should be really careful about saying that. Entergy ran PNP into the ground during those years, and NRC let Entergy do so. The apparent thinking was, it's closing down for good anyway, so why not run it into the ground? Inspections and maintenance galore were waived and exempted, with NRC's blessing. The problem is, Holtec now plans to restart PNP, without fixing the many problems caused by Entergy's running PNP into the ground. This is a recipe for disaster.

We also incorporate by reference as if fully rewritten herein a second document prepared by Lochbaum, a listing of events at PNP. This shows why and how PNP had such bad capacity factors in the 1970s, and had such poor performance for its last 25 years of operations as well:

<http://beyondnuclear.org/wp-content/uploads/2024/03/Lochbaum-Events-at-Reactor-Sites-Palisades-History-3.pdf>

PNP dodged many radioactive bullets over its 51 years of operations, which means residents downwind, downstream, up the food chain, and down the generations did as well. But now Holtec wants to begin playing radioactive Russian roulette again at PNP...]

Additionally, there were no significant cumulative effects identified.

[This is quite an absurd claim. Just look at the impacts since 1967...2051 would mark nearly a century of such impacts...the 2 SMRs would extend such impacts by decades more into the future...so too would the zombie's 100 year license out to 2071, etc., if that is sought, which is not beyond the realm of the possible. This represents cumulative effects ad nauseum, ad infinitum. NRC and DOE are willfully blind to this. See Upton Sinclair quote, above.]

The NRC staff based its conclusions on an independent review of information provided in Holtec's licensing submittals, as well as other relevant information and sources.

[I guess WE are irrelevant then, since they have ignored us from the very beginning, and still do. And Holtec speaks nothing but the gospel truth, at least in NRC's eyes that is. NRC sees eye to eye with them, the nuclear rogues and crooks. This is most dangerous collusion, as the Japanese Parliament warned about after the Fukushima nuclear catastrophe.]

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Preparations for resumption of power operations activities would occur only in previously disturbed areas on the Palisades site, reducing the impact to soil resources, as there are no known geologic resources in the vicinity of Palisades.

[This statement strikes me as odd. It makes the PNP site sound like a wasteland, worthless. They are striving to make it that, radioactively, it seems. So if PNP has already trashed the site for nearly 60 years, it's fine for PNP to continue trashing the site, for another 60 years or longer, if the SMRs' operations are also included, as they should be under NEPA/Cumulative Effectis. Segmentation is now allowable. This thinking means the site will never be allowed to heal from all PNP's abuse of it, not for a very long time, if ever.]

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Table 4-1 Summary of Environmental Impacts from the Preparations for Resumption of Power Operations and Resumption of Power Operations at Palisades Nuclear Plant

[All of these categories are for PNP's impacts on THEM. What about their impact on PNP? What about extreme weather's potential impact on PNP, driven by climate chaos? What about a tsunami wave off the Lake? What about even a minor earthquake's impacts on dry cask storage, for example. The list goes on and on. NRC, and Holtec, are willfully blind to the risks.

Speaking of climate change's many risks to PNP, we hereby incorporate by reference, as if fully rewritten herein, numerous documents published by NIRS and Beyond Nuclear, over years and decades, warning about the risk of operating atomic reactors, including PNP, in an era of climate destabilization and ever more extreme weather:

Re: climate, and not losing the forest for the trees at Palisades, extreme weather and climate destabilization are extreme risks for the Palisades' zombie restart, and so-called "Small Modular Reactor" new build schemes. That is, rather than nuclear power solving climate change, instead climate chaos and atomic reactors (and radioactive waste) make for a ever more dangerous combination, as we've been warning about for a very long time:

<https://beyondnuclear.org/climate-crisis/>

<http://archives.nirs.us/climate/background/backgrndhome.htm>

<https://archive.beyondnuclear.org/climate-change-whats-new/>

- [Climate Chaos and Nuclear Power](#)
2008

[Nuclear Power and Hurricanes.](#) **PDF** NIRS Advisory. September 22, 2005.

Nov. 2004: <http://archives.nirs.us/factsheets/naturaldisaster&nuclearpower.pdf>

Nukes and Climate Change Fact Sheets

- NIRS Briefing Paper: [Nuclear Energy is Dirty Energy \(and does not fit into a “clean energy standard”\)](#). **PDF** Revised and updated, July 2014.
- [Nuclear Power and Climate: Why Nukes Can't Save the Planet.](#) **PDF** NIRS factsheet. June 2014
- [No Nukes, No Coal, No Kidding.](#) **PDF** Spring 2009..
- [Ten Reasons Why We Don't Need To Build More Nuclear Power Plants.](#) May 2005.
- [Nuclear Power Can't Stop Climate Change](#) (**PDF**, 47Kb)- August 06, 2004
- [Hydrogen Production and Nuclear Power](#) **PDF** - April, 2003
- [Nuclear Power and Global Warming](#) (from Friends of the Earth Scotland), January 1998
- [Nuclear Power and "Clean Development Mechanisms"](#)

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Visual

[What an eyesore PNP is. What a terrifying sight, if you know what you are looking at, in terms of the catastrophic radioactive risks PNP contains. It puts the Great Lakes at existential risk of radioactive ruination. The Great Lakes State as well. Radioactivity being invisible and all, but its potential and real consequences all too horrifying. Other than that, PNP is just ugly. An industrial eyesore in an otherwise idyllic, beautiful place. Monstrosity up the beach, even per PPCC in their centennial year book in 2005. That was the chapter title about PNP, “The Monster Up the Beach.” Which is close to alluding to *On the Beach*, the post-apocalyptic 1950s novel by Nevil Shute about the aftermath of large-scale nuclear war.]

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Terrestrial and
Aquatic Ecology

[How rude to say ruderal:

Ruderal

adjective

*adjective: **ruderal***

1. *(of a plant) growing on waste ground or among refuse.*

noun

*noun: **ruderal**; plural noun: **ruderals***

1. *a plant growing on waste ground or among refuse.*

What an odd thing to say. How very misleading. The PNP site is amidst critically endangered sand dunes on the shore of the Great Lakes. An area of tremendous biological diversity, and tremendous natural beauty, that is very fragile, and critically endangered.

If PNP hadn't trashed the place, it would not be ruderal.

Liberty Hyde Bailey is a famous botanist who hailed from South Haven, MI. We incorporate by reference this website, as if fully rewritten herein:

https://en.wikipedia.org/wiki/Liberty_Hyde_Bailey

His childhood home is now a museum dedicated to his memory and remarkable lifetime of achievements in botany. We incorporate the following by reference, as if fully rewritten herein:

<https://www.libertyhydebailey.org/about-bailey>

Although he lived nearly a century, and died just about a decade before PNP broke ground, he must be rolling in his grave, about the radiological and other harms done to the critically endangered, fragile, and biologically diverse flora upon which PNP was imposed nearly 60 years ago now. As the biologist Timothy Mousseu and his colleagues have documented at Chornobyl, with a large number of peer-reviewed scientific studies, a nuclear catastrophe can wreak havoc on fauna and flora, across very large regions. That is what is now being risked at PNP, with the restart and SMR new builds. PNP could yet turn the Great Lakes region, including the Great Lakes State, out to great distances, into one large radioactive ruderal wasteland.]

The NPDES permit no. MI0001457
regulates thermal discharge and chemical
releases into Lake Michigan.

[Trashing the Lake itself, too. And putting it at existential risk of radiological ruin. PNP treats Lake Michigan like a radioactive wastewater industrial sewer. A meltdown could make the Lake(s) unfit for human consumption as drinking water or irrigation water for agriculture, or contact. Fisheries would also be ruined, or wiped out.

Re: the PNP NPDES, we incorporate by reference as if fully rewritten herein, the following website post, which documents our environmental coalition's comments to MI EGLE, urging that PNP's NPDES not be renewed, and not approve PNP treating Lake Michigan like a toxic chemical, thermal wastewater, and radioactive industry sewer for dumping hazardous substances:

<https://beyondnuclear.org/71-groups-to-state-of-mi-stop-permitting-palisades-reactor-to-dump-in-lake-michigan/>

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For
federally listed terrestrial and aquatic species,
activities associated with the preparations for
the resumption of operations and the

To

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resumption of operations will either have “no
effect” on the species or “may affect, not likely to
adversely affect” the species.

[What wishful thinking, that flies in the face of the facts. Sociopathic if not psychopathic, not only in regards to ecological impact, but also on human health. Certainly ghoulish, and oh so convenient for Holtec, in pursuit of its restart and SMR new build schemes.]

Historic and
Cultural
Resources

Historic properties under the NHPA do not occur within the APE, and thus there will be no historic properties affected as part of the preparations for resumption of power operations, and the resumption of operations. Additionally, no historic and cultural resources have been identified within the APE. Ground disturbance will occur in areas of previous ground disturbance, and Palisades-specific procedures provide a control to monitor and protect cultural

resources, if encountered on Palisades site during the resumption of power operations (and for activities occurring as part of the preparations for resumption of power operations).

[What utter disregard for the Indigenous burials, and other culturally significant Indigenous sites that are very likely on the PNP site. Talk is cheap. Holtec, and NRC, lie. How can their word be trusted re: protecting Indigenous sites, if encountered, if they don't even bother to look for them very carefully, if at all, pre-restart? And then there is SMR construction. That will disturb the ground like nothing seen at that site since 1967-1971, the construction of the now would-be zombie. Of course, the radioactive contamination of the site is another LARGE impact, that NRC ignores. We quoted Upton Sinclair earlier as to why NRC, DOE, various State of MI agencies, etc., would allow such disregard for sacred Indigenous sites at PNP.]

We incorporate by reference, as if fully rewritten herein, a submission by NIRS and IEN in 2006, regarding this same subject matter:

<http://beyondnuclear.org/wp-content/uploads/2025/03/2006-NIRS-IEN-ML061570022.pdf>

They were comments to NRC submitted on 5/18/2006, in response to the draft SEIS on PNP's 2011-2031 license extension. They have been ignored by NRC for nearly two decades. We would like them to be taken seriously, at long last.]

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Socioeconomics

3.9

The number of workers at Palisades will peak at 1,600 during preparations for the resumption of operations (similar to the number of workers needed during refueling outages). **Once operations resume, the number of workers will return to 600, similar to the number of workers at Palisades during previous operational periods.** Holtec expects property tax payments to return to pre-decommissioning levels (approximately \$10 million per year) starting in 2027. Any other socioeconomic impacts would be minimal. **[Emphasis added.]**

[At one time, over the years or decades, a figure of only 450 workers at PNP was reported. Was it still during Consumers Energy's ownership tenure, when NMC was contracted to actually operate PNP? Or was it during Entergy's reign. The various owners' figures for the number of workers at PNP has fluctuated wildly over the years and decades. Even since Holtec took over, on June 28, 2022, the numbers of workers figure has fluctuated wildly. During an NRC-Holtec technical meeting a year or two ago, Holtec reported, in writing in a slideshow presentation, that only 500 workers would be employed at the restarted PNP reactor. This was significant, because it was 100 workers less than had previously reported, meaning the cost per job would increase dramatically, in terms of how much money in public bailouts would be required, per "restored" job. If the 220 workers still employed when Holtec took over on 6/28/22 would only be complemented by 280 "restored" jobs, for a total of 500 workers at the restarted PNP, each "restored" job would have cost \$29 million, a thousand times more than an average new job created with the help of subsidies from the State of MI in 2023. That figure was \$29,000 per new job created. Now NRC and DOE report 600 jobs again, above. In the past 650 jobs have been reported at PNP. Proponents of restart really need to get their figures together, and in agreement. If a total number of jobs is promised, then that promise gets broken in the future, that is a very big deal.]

We incorporate by reference as if fully rewritten herein a Breakdown of Bailouts at Palisades, prepared by Beyond Nuclear's Kevin Kamps:

<https://beyondnuclear.org/breakdown-of-bailouts-at-holtecs-palisades/>]

Environmental
Justice

3.10

There would be no significant human health or environmental effects from the proposed Federal actions that would be disproportionately high and adversely affect environmental justice populations.

[This is a false statement. NRC and DOE's analysis and conclusions are themselves EJ violations. They do not care about the area residents in Covert Twp, Benton Harbor, Pokagon, Gun Lake, Van Buren County, etc. — disproportionately high African American, Native American, Latino, and/or low income populations reside in this area. NRC and DOE are blind to EJ impacts, but spout false claims of EJ, and pat themselves on the back for how great a job at EJ they do. NRC and DOE themselves violate EJ, including with this EA's faulty analysis and wrongheaded conclusion, let alone the EJ violations Holtec's reactor restart and SMR new build schemes represent.]

[Only \$10 million per year in taxes? That's nothing. They have projected at least \$412.5 million per year in revenue. They are raking in up to \$16+ billion in public bailouts, if they get all they've asked for that we know about. \$10 million per year in tax revenues is a pittance, pocket change, loose change in the couch cushions. And yet Covert Twp. and the City of South Haven and Van Buren Co. are desperate for it, addicted to it. They have been for 60 long years. Same for charitable donations. Entergy's \$100,000 of charity in 2012-13 was laughably small. What is that, a few hours of profits, if that? But of course Holtec is now illegally looting the DTF, so Holtec's charity donations would largely come from that it seems. Which will leave a very big radioactive mess, and no money to pay for its clean up, if they ever get around to that in the next century. Winona "No Nukes" LaDuke has said, re: radioactive waste and contamination, that the first rule in kindergarten is, you have to clean up your previous mess, before you are allowed to make a new one. But the nuclear power industry breaks this rule all the time.]

Radiological
and
Nonradiological
Human Health

3.11

The NRC staff expect radiological releases, doses to the public, and occupational doses would be less than the limits established for protection of human health and the environment in 10 CFR Part 20 and Occupational Safety and Health Administration (OSHA) regulations.

[As mentioned above, NRC's nuclear worker radiation exposure regulations in the US are remarkably and shockingly lax, compared to international regs — 5 R/yr instead of 2 R/yr. Per above, the U.S. NAS linear, no threshold theory means that US nuclear workers, including at PNP, infamous for worker exposures due to leaks and spills, will suffer 2.5 times the health damage, under NRC's lax regs, than their international counterparts. Gender and radiation studies reveal that women workers, and those of child-bearing age, and especially their unborn children, are the highest risk demographics of all. See the following, incorporated by reference, as if fully rewritten herein:

<https://beyondnuclear.org/health-impacts/reference-girl/>

<https://beyondnuclear.org/health-impacts/updates-and-studies/>

<https://beyondnuclear.org/webinar-what-nuclear-boosters-wont-tell-you-about-radiation/>

<https://www.genderandradiation.org/>

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workers as part of the preparations for the resumption of operations and the resumption of operations. For nonradiological human health, Palisades maintains a safety program that addresses applicable OSHA standards that will be in place for preparations for resumption of power operations and resumption of power operations.

[The PNP rust bucket will leak and spill worse than ever — which is really saying something! — if and when it is restarted. See comments about past leaks and spills, above.]

Uranium Fuel
Cycle and
Transportation

3.13

A low quantity of uranium would be used during the 7-year operational period (resumption of operations). Fuel processes are bounded by Table S-3 and S-4 of 10 CFR 51.51.

Environmental impacts from storage of spent fuel would be less than the environmental impact described by the Continued Storage GEIS. The estimated volume of LLRW is less than or comparable to that of other reactors, and the NRC staff determined that there is adequate capacity for LLRW disposal. The on-site storage of spent fuel would have to meet the same regulatory requirements as currently licensed reactors and the currently stored spent fuel at Palisades. Transportation of fresh fuel to Palisades, and transportation of LLRW from Palisades, would be performed in compliance with DOT and NRC regulations and constitutes only a small percentage of the total materials of these types shipped each year.

[What about the so-called “LLRW” dumping impact on the Ogallala Aquifer, near or even below Waste Control Specialists, LLC’s (WCS) dump in Andrews County, west Texas. Holtec said in its Dec. 2020 Palisades PDSAR that it plans to dump ALL of PNP’s LLRW at WCS. Even if Holtec does dump some of PNP’s LLRWs at other potential dumpsite locations — such as near the Skull Valley Goshutes Indian Reservation at EnviroCare in the toxic industries zone of Toole County, west Utah — these are all EJ violations. NRC and DOE’s HLRW and LLRW nonchalance is an EJ violation, heartless, and ghoulish. CISFs in NM and TX, the permanent repository targeted at Western Shoshone land at Yucca Mountain in NV, these dumps’ closely related Mobile Chornobyl shipping risks, including Holtec’s HLRW barge shipments plan on Lake Michigan, are all ghoulish and high-risk EJ violations as well. We incorporate the following as if fully rewritten herein:

<https://beyondnuclear.org/video-fact-sheets-about-ej-burden-of-nuke-waste-dumps-transport/>]

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Postulated

Accidents

[See Arnie Gundersen’s 2015 essay “Downstream,” cited above. Chornobyl- or Fukushima-scale radioactive catastrophies on the Lake Michigan shore, including all too possible at a restarted PNP, are unacceptable! See our commentary on the NRC’s own CRAC-II casualty and property damage figures, above.]

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4.2 Comparison of Alternatives

In Section 2.2 of this EA, the NRC staff considered possible alternatives to the proposed Federal actions to reauthorize power operations at Palisades. Only one alternative was carried forward for further analysis, the no-action alternative. The NRC staff independently reviewed information concerning other possible alternatives and determined that none were reasonable alternatives warranting further evaluation

[Ken Bossong with Sun Day Campaign based in Takoma Park, Maryland publishes regular updates on the growth of renewable energy in the U.S. and around the world. They are quite hopeful. Renewables are growing by leaps and bounds, and have been for a long time, as opposed to nuclear power, despite its massive subsidization, as by the federal government and State of Michigan government for zombie reactor restart at Palisades, as well as SMR new builds there, and at Big Rock Point. We urge NRC to subscribe to Ken Bossong’s emailed newsletters!]

See Dr. Jacobson’s expert witness declaration testimony submitted to ASLB in this very PNP restart proceeding, above. We also cite Dr. Mark Cooper, Arnie Gundersen of Fairewinds, and Dr. Al Compaan’s expert witness declarations, submitted on behalf of PSR WI, in its opposition to an 80-year license at Pt. Beach nuclear plant in WI, which is relevant to the

Alternatives Analysis in this EA, given the comparable geographic locations of Pt. Beach and Palisades, in terms of renewable potential. We incorporate by reference as if fully rewritten herein their expert witness declarations, posted online here:

<https://archive.beyondnuclear.org/home/2021/7/29/nrc-rejects-safety-at-wi-nuke-dangerously-age-degraded-nuke.html>

[NRC REJECTS SAFETY AT WI NUKE: Dangerously age-degraded nuke may get license extension](https://archive.beyondnuclear.org/home/2021/7/29/nrc-rejects-safety-at-wi-nuke-dangerously-age-degraded-nuke.html)

*A U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (ASLB) panel has [rejected](#) numerous [contentions](#) brought by [Physicians for Social Responsibility Wisconsin](#) (PSR WI), while it acknowledged the group's legal standing. PSR raised objection to a "[subsequent license renewal](#)" at the two-reactor Point Beach nuclear power plant on the Lake Michigan shore (pictured). [Point Beach is already 51 years old](#), but is seeking approval to operate for 80 years. It has the worst embrittled reactor pressure vessel in the U.S. -- a pathway to core meltdown, and an issue raised by PSR WI's expert witness, nuclear engineer [Arnie Gundersen](#) of Fairewinds Associates. **Experts [Al Compaan](#) and [Mark Cooper](#) raised contentions about safe, clean, and affordable renewable alternatives.***

July 29, 2021

Our previous comments cited above re: Dr. Arjun Makhijan's extensive work, over decades, on the carbon-free, nuclear-free alternatives of renewables, efficiency, and storage are also very relevant here.]

As noted in Section 2.2.1.1 of this EA, taking no action would not meet the clean energy demand driving the purpose and need for the proposed Federal actions and could lead to a need to build new nuclear or non-nuclear power generation facilities.

This is illogical. The non-nuclear power generation facilities — as well as the non-fossil fuel power generation facilities — that could be built would and should include renewables. Yet NRC and DOE refuse to consider them a viable alternative. This is especially ironic, considering the great work of DOE's own National Renewable Energy Lab! But NRC and DOE here say they could not be. Renewables would be more cost effective, just as reliable if not more so, as compared to PNP, especially if storage is included,. Renewable would also be much safer, more secure, cleaner, etc., as compared to PNP. NRC and DOE are willfully blind to all this. Also see Dr. Mark Jacobson's expert witnesses declarations in this very ASLB proceeding, cited above.]

However, building new facilities would result in additional environmental impacts related to land disturbance and use of construction equipment. These impacts would be greater than those needed to put the already built Palisades facilities back into operation.

[Interesting NRC and DOE say this, since Holtec also proposes building 2 SMR-300s on the very same site as the restarted PNP zombie reactor. And yet there is no mention of that here?!]

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5 DRAFT FINDING OF NO SIGNIFICANT IMPACT

The proposed Federal actions before the NRC are whether to grant requests for an exemption, a license transfer, and license amendments to support reauthorizing Palisades for power operations through the remainder of its licensing term (to March 24, 2031).

[DOE and NRC are also substantially ignoring the 80-year license, to operate PNP's zombie reactor from 2031-2051. Chances are, PNP would also apply for a 100-year license at some point, which NRC and DOE have entirely ignored in this EA. That is reasonably foreseeable, as NRC and industry have been talking about 100-year licenses for decades — for example, Luis Reyes, NRC staffer of high level (wasn't he formerly NRC's EDO?), spoke glowingly about 100-year licenses at a gathering of hundreds of NRC staffers and industry representatives, which Beyond Nuclear's Kevin Kamps attended; that event was likely decades ago now. Reyes at that same meeting advised his closed friends and colleagues at NRC and in industry to stop calling it "spent nuclear fuel," and instead to call it "used nuclear fuel," because that phrase was even less concerning for Joe and Jane Six Pack. Was Reyes paid a bonus on the side by industry, for such off the top of his head focus group PR advice, to promote the nuclear power industry's agenda? We didn't know such PR advice to industry was a part of NRC's supposed health, environment, and safety protection mandate?!]

NRC and DOE's substantially ignoring the two SMR-300s proposed by Holtec at PNP, for the most part, and operating licenses approvals (including extensions at the restarted zombie reactor) beyond 2031, violates cumulative effects impacts analysis requirements under NEPA. In other words, NRC and DOE are violating environmental protection law! This environmental review should not be treated as a mere "paper game," and a very shallow one at that. NRC and DOE should correct their mistakes by withdrawing this failure of an EA, and undertaking a higher level EIS/PEIS, with six months allowed for public comment.]

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[How is it that even citing so many references in section 6 of this EA, DOE and NRC have nonetheless carried out no more than a shallow check the box exercise, that entirely — likely intentionally — missed the mark and ignored the major, large, negative impacts for

the environment, health, and safety, due to the zombie reactor restart and SMR new build schemes at PNP?!]

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HDI (Holtec Decommissioning International, LLC). 2023. Notification from B. Turco, Holtec Palisades LLC, Chemistry/Environmental Supervisor - Palisades, to J. Rubio, Michigan Department of Environment, Great Lakes, and Energy, Water Resources - Kalamazoo District Office, regarding “an Upset Non-Compliance incident of the Station’s [Palisades Power Plant] NPDES permit.” Palisades Power Plant, Covert, Michigan. TN10674.

[Why was no more detail readily provided in the EA about this? So DOE and NRC put the burden on the public to track down any specifics about what happened? Even the scant information provided here shows that PNP is far from “clean” energy, undermining this EA’s Purpose and Need section, as well as the so-called “clean” energy State of Michigan law cited by DOE and NRC.]

Holtec Decommissioning International. 2023. Letter from J.A. Fleming, Vice President Licensing, Regulatory Affairs & PSA, to NRC Document Control Desk, dated September 28, 2023, regarding “Request for Exemption from Certain Termination of License Requirements of 10 CFR 50.82.” Camden, New Jersey. ADAMS Accession No. ML23271A140. TN10538.

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Holtec Decommissioning International. 2023. Letter from J.A. Fleming, Vice President Licensing, Regulatory Affairs & PSA, to NRC Document Control Desk, dated September 28, 2023, regarding “Request for Exemption from Certain Termination of License Requirements of 10 CFR 50.82.” Camden, New Jersey. ADAMS Accession No. ML23271A140. TN10538.

[The waste, fraud, and abuse of Holtec’s bait and switch trick is massive. Holtec told a big lie in order to get hold of PNP in the first place — that it would decommission PNP. This was a con job. Clearly, the plan all along was to restart the zombie reactor, and build SMRs instead. See Holtec’s 7/5/22 secret bailout application to DOE, obtained by Beyond Nucler through a FOIA request to the State of MI, for substantial evidence of this. NRC Commissioner Bradley Crowell, in a Feb. 2023 ExchangeMonitor interview, asked why PNP restart proponents had waited till the last second to even float the trial balloon. But even “starting from scratch” — having to obtain a new operating license — would still be waste, fraud, and abuse. Because much of this ad hoc “regulatory pathway to restart” process, for lack of clear NRC’s regulations on restarting closed for good reactors in decommissioning phase status, has been to reverse exemptions and waivers from operational status regulatory requirements requested by Entergy and Holtec, and granted by NRC, that now have to be reversed. NRC has engaged in waste, fraud, and abuse as much as Holtec has throughout this theater of the absurd process!]

[The HDI documents cited above by NRC and DOE don't mention many of the LAR requests, etc. This is certainly true of recently submitted LAR requests, such as those having to do with Leak-Before-Break, and degraded steam generator tube BAND-AID fixes, proposed by Holtec. Holtec's regulatory pathway to restart process is a moving target, that is most unfair to the concern public, such as intervening groups. It is a chaotic Rube Goldberg machine exercise, that does not bode well for the protection of public health, safety, and the environment, which is supposed to be NRC's mandate. Instead, NRC seems to see its job as doing whatever Holtec asks it to, including rubberstamping any and all regulatory approvals Holtec's happens to finally think to request, some years after Holtec abruptly decided to restart PNP, instead of decommission it as promised to the public.]

MDEQ (State of Michigan Department of Environmental Quality). 2014. State of Michigan Department of Environmental Quality, Permit No. MI0001457, Authorization to Discharge Under the National Pollutant Discharge Elimination System. Lansing, Michigan. TN10665.

[How's that for an Orwellian title, concept, and construct. We would love for MI EGLE to prevent pollutant discharges from PNP, by refusing to authorize them. Authorizing pollutant discharges from PNP does not prevent them, quite the opposite!]

MDHHS (Michigan Department of Health and Human Services). 2024. Letter from K. Vang, Unit Manager, Health Statistics Surveillance Unit, Environmental Health Surveillance Section, Division of Environmental Health, to D. Persky, Health Officer, Van Buren/Cass District Health Department, dated November 15, 2024, regarding "Findings of investigation of cancer incidence among residents of Covert Township, Michigan." Lansing, Michigan. ADAMS Accession No. ML25006A210. TN10866.

[They are blind to it. They are a part of the problem. They are a rear guard for industry. As are NRC and DOE.]

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MDNR (Michigan Department of Natural Resources). 2024. "Invasive Species: Identify and Report." Lansing, Michigan. Accessed June 11, 2024, at <https://www.michigan.gov/invasives/id-report>. TN10737.

[What about humans? Aren't we an invastive species. Not Indigenous Peoples, who have been at and around PNP since time immemorial, as Western Shoshone spiritual leader Corbin Harney referred to it. After all, the Indigenous Peoples who've inhabited Michigan and the Great Lakes, since the last Ice Age, some 12,000 years ago, did not trash the region,

*as with hazardous radioactive contamination. But Europeans, beginning in the late 1600s, have done considerable damage, perhaps no more so than after PNP was built and fired up. After all, irradiated nuclear fuel is hazardous and deadly for at least a million years, a curse on all future generations. (Actually, artificial Iodine-129, an emitter of ultra-hazardous alpha particles, has a half-life of 15.7 million years, so a hazardous persistence of at least 157 million years, if not even 314 million years! PNP generates this radioactive isotope that does not exist in nature! And for what? A little electricity? So Holtec can make filthy, subsidized profits off the backs of hard working American and Michigan taxpayers, and ratepayers in rural MI, IN, and IL?!) Now Holtec wants to make even more highly radioactive waste at PNP, for no good reason whatsoever. It should not be allowed to. The restart should not be authorized by NRC. The associated bailouts should not be approved by DOE. The State of MI should also withdraw all its subsidies and all needed approvals. Enough has been way more than enough at PNP! As an elder Spanish speaker at a DOE Yucca Mountain Project public comment session in Las Vegas, NV put it — shouting very loudly into the microphone — decades ago, while slamming her fist very loudly on the table: **‘BASTA!’ And, as Corbin Harney put it at a DOE Yucca Mountain Project public comment hearing at about the same time, held in Salt Lake City: “If you DOEs want to destroy a planet, why don’t you go up to Mars and destroy that one? Leave our Mother Earth here alone.”**]*

MEGLE (Michigan Department of Environment, Great Lakes, and Energy). 2022. Renewable Operating Permit Staff Report, Holtec Palisades, LLC, Palisades Nuclear Plant. MI-ROP-B2934-2019a, Covert, Michigan. TN10667.

*[Unfortunately, there are no renewables — as in oh so viable renewable energy alternatives to PNP — included in this EA. That’s the problem. Why wasn’t Gov. Granholm’s off-shore wind report from 2010, which we cited above, included as part of the alternatives analysis in this EA?! After all, she was the Energy Secretary when this DOE-sponsored EA was launched in 2024. **Would the REAL Jennifer Granholm PLEASE STAND UP?!** We are supposed to believe, in the year 2025, that there are no alternatives to this PNP restart scheme?! How absurd is that?! Renewables are the future, if we are to have a future.]*

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NRC (U.S. Nuclear Regulatory Commission). 1991. Letter from B.A. Boger, Director, Division of Reactor Projects III/IV/V, Office of Nuclear Reactor Regulation, to G.B. Slade, Plant General Manager, Palisades Nuclear Plant, dated February 21, 1991, regarding “Issuance of Full-Term Operating License DPR-20 - Palisades Plant (TAC No. 11218).” Washington, D.C. ADAMS Accession No. ML020810482. TN11017.

[What were the reasons why a 20-year provisional license, from 1971 to 1991, was kept in place at PNP? Was it because it was a nuclear lemon from the start? Consumers Power sued

PNP's architect-engineer, Bechtel Corp., for \$300 million in the early 1970s — a very large amount of money at the time — when PNP's substantially nuclear lemon status was quickly revealed, post-construction. In the end, Consumers Power settled with Bechtel for \$13 million, in an out of court settlement, still a substantial amount of money at the time, in early 1970s dollar figures. Just adjust for inflation to present dollar figures to see how much \$13 million, or \$300 million, in early 1970s dollar figures, would be in terms of present day dollar figures. But unfortunately for the Great Lakes and all who call them home, humans and other living things, Consumers Power decided to fire up PNP anyway, in 1971. Entergy took over in 2007. Now Holtec wants to restart the nuclear lemon from the start, now dangerously age-degraded PNP, and even add more risk — two SMR-300s. This is an existential threat to the Great Lakes, the Great Lakes State, and all points downwind, and downstream, and up the food chain, out to great distances, and also down the generations, out to great distances as measured in time, as well.]

P.130/242 ON PDF COUNTER (page 6-16)

NRC (U.S. Nuclear Regulatory Commission). 2022. Letter from S.P. Wall, Senior Project Manager, Plant Licensing Branch III, Division of Operating Reactor Licensing, to P.P. Oneid, Senior Vice President and Chief Nuclear Officer, Holtec International, Krishna P. Singh Technology Campus, dated June 28, 2022, regarding “Palisades Nuclear Plant and Big Rock Point Plant - Issuance of Amendment Nos. 129 And 273 Re: Order Approving Transfer of Licenses and Conforming Administrative License Amendments (EPIDS L-2022-LLM-0002 AND L-2020-LLM-0003).” Washington, D.C. ADAMS Accession No. ML22173A179. TN10545.

[Provisional NRC staff decision? But the NRC commissioners finalized it on July 15, 2022. Our environmental coalition, seeking to intervene, met NRC's arbitrarily short 20 day deadline to intervene on Feb. 24, 2021. NRC then kept us waiting 1 year and 5 months, without a peep, even though Kevin Kamps of Beyond Nuclear had asked, at an annual PNP performance review meeting in summer 2021, what the status of our intervention petition and hearing request was. The NRC staff said be patient, we must wait for the NRC commissioners to make the decision and issue their ruling. Of course, the NRC staff then acted first, approving Holtec's takeover of PNP, supposedly for decommissioning purposes only. Then the NRC commissioners issued their agreement with the NRC staff's “provisional decision,” and told us to go jump in a Great Lake. This, even though MI AG Dana Nessel had gotten a partial admission to an ASLB hearing, in a secretive, behind closed doors process. She, and her expert witness, stood by their allegation that PNP DTF was \$200 million short of even the PSDAR and Decommissioning Cost Estimate published by Holtec in Dec. 2020. Ironically, that is almost the exact amount of money Gov. Granholm and her MPSC allowed Entergy and Consumers Energy to loot from teh PNP DTF in early 2007. AG Nessel later bashed NRC processes and proceedings, in a joint Friend of the Court Brief filed with the NM AG and governor, re: CISFs, that NRC has approved, violating the consent, and against the will, of NM, as well as TX. That case is before the SCOTUS on March 5, 2025, for oral arguments. We incorporate by reference as if fully rewritten herein, the following:

<https://www.supremecourt.gov/DocketPDF/>

[23/23-1300/339871/20250122144808512_23-1300%2023-1312%20Amici%20Brief.pdf](https://www.supremecourt.gov/DocketPDF/23/23-1300/339871/20250122144808512_23-1300%2023-1312%20Amici%20Brief.pdf)

<https://archive.beyondnuclear.org/decommissioning/month/february-2021/>

P.131/242 ON PDF COUNTER (page 6-17)

NRC (U.S. Nuclear Regulatory Commission). 2024. Letter from T. Smith, Acting Deputy Director, Division of Rulemaking, Environmental, and Financial Support, Office of Nuclear Material Safety and Safeguards, to R. Blanchard, Tribal Chairman, Bad River Band of the Lake Superior Tribe of Chippewa Indians (Wisconsin); W. Gravelle, President, Bay Mills Indian Community; C.J. Chavers, Tribal Chairwoman, Bois Forte Band (Nett Lake) of the Minnesota Chippewa Tribe; H. Baker, Chairman, Chippewa Cree Indians of the Rocky Boy's Reservation of Montana; J. Barrett, Chairman, Citizen Potawatomi Nation; J.A. Crawford, Chairman, Forest County Potawatomi Community; R. Deschampe, Chairman, Grand Portage Band of Lake Superior Chippewa; S. Witherspoon, Chairwoman, Grand Traverse Band; K. Meshigaud, Chairperson, Hannahville Indian Community; L.D. Taylor, Chairman, Lac Courte Oreilles Band of Lake Superior Chippewa; J.D. Johnson, Sr., President, Lac du Flambeau Band of Lake Superior Chippewa Indians; J. Williams Jr., Chairman, Lac Vieux Desert Band of Lake Superior Chippewa Indians; F. Jackson, Sr., Chairperson, Leech Lake Band of Ojibwe; L. Romanelli, Ogema Little River Band of Ottawa Indians; R. Gasco, Chairperson, Little Traverse Bay Bands of Odawa Indians; B. Peters, Tribal Chairman, Match-e-be-nash-she-wish Band of Pottawatomi Indians; G. Kakkak, Chairwoman, Menominee Indian Tribe of Wisconsin; D.G. Lankford, Chief, Miami Tribe of Oklahoma; M. Benjamin, Chairperson, Mille Lacs Band of Ojibwe; D. Rios, Chairperson, Nottawaseppi Huron Band of the Potawatomi; K. Dixon, Chief, Ottawa Tribe of Oklahoma; M.J. Wesaw, Chairman, Pokagon Band of Potawatomi Indians; J. Rupnick, Chairman, Prairie Band Potawatomi Nation; G. Johnson, President, Prairie Island Indian Community; J.D. Joaquin, President, Quechan Tribe of the Fort Yuma Indian Reservation (California and Arizona); N. Boyd, Chairperson, Red Cliff Band of Lake Superior Chippewa Indians (Wisconsin); D.S. Sr., Chairperson, Red Lake Band of Chippewa Indians (Minnesota); T. Davis, Chief, Saginaw Chippewa Indian Tribe of Michigan; T. Fowler, Chairperson, Saint Croix Chippewa Indians of Wisconsin; A. Lowes, Chairperson, Sault Ste. Marie Tribe of Chippewa Indians; J. Azure, Chairperson Turtle Mountain Band of Chippewa Indians (North Dakota); and M. Fairbanks, Chairperson, White Earth Band of Minnesota Chippewa Tribe; dated November 4, 2024, regarding "Area of Potential Effects Notification and Continuing Section 106 Consultation for the Environmental Review of Holtec Decommissioning International, LLC's Licensing and Regulatory Requests for Reauthorization of Power Operations at Palisades Nuclear Plant (EPID Number: L-2024-LNE-0003) (Docket Number: 50-255)." Washington, D.C. ADAMS Accession Package No. ML24292A044. TN10840.

[Aren't there additional relevant Indigenous Nations that are missing from the listing above?

What about many and various bands of the Sauk (also known as the Asâkîwaki) and Fox, as but one example? After all, Grace Thorpe of the Sauk and Fox of Oklahoma devoted decades of her life, helping her traditional friends and environmental colleagues in dozens of Indigenous Nations across Turtle Island in blocking nuke waste dumps that

DOE, and NRC, were trying to shove down their throats, against their will and without their consent, an Environmental Justice violation. We incorporate by reference as if fully rewritten herein the following:

<https://archive.beyondnuclear.org/radioactive-waste-whatsnew/2018/2/14/president-obama-honored-grace-thorpe-re-her-resistance-to-nu.html>

<http://archives.nirs.us/radwaste/scullvalley/skullvalley.htm>

DOE and NRC are still up to these same nasty tricks, present day:

As 140 groups, including IEN (Indigenous Environmental Network), told Energy Secretary Granholm in March 2022, DOE needs to stop targeting Native American reservations for high-level radioactive waste dumps.

We incorporate the following by reference as if fully rewritten herein:

<https://archive.beyondnuclear.org/centralized-storage/2022/3/4/coalition-comments-to-doe-in-defense-of-environmental-justic.html>

437 groups, including a large number of Indigenous Nations organizations, said the same thing to the NRC commissioners in September 2005, regarding the Private Fuel Storage, LLC dump targeted at the tiny Skull Valley Goshutes Indian Reservation in western Utah.

We incorporate by reference as if fully rewritten herein the following:

[On behalf of the millions of members our 437 organizations represent \(31 Native American, 26 national, 366 regional/state/local, and 15 international organizations\), we urge you not to approve the license application by Private Fuel Storage, LLC \(PFS\) to open an "interim storage site" for commercial irradiated nuclear fuel at the Skull Valley Goshute Indian Reservation in Utah. This letter was delivered to the NRC Commissioners on July 7, 2005. But on September 9, 2005, by a split 4 to 1 decision, the NRC Commissioners voted to issue PFS a construction and operating license.](#)

By a 4-1 vote (Commissioner Jaczko dissented), the NRC Commissioners ignored the letter, and approved the dump targeted at Skull Valley. Despite NRC's license, PFS was stopped anyhow, even before ground was broken. We hope to achieve the exact same end result, despite NRC's environmentally unjust license approvals for the ISP CISF in TX, and the Holtec CISF in NM.

Tellingly, Holtec would have provided 4,000 containers, for 40,000 MT of irradiated nuclear fuel, for PFS at Skull Valley, and would have likely made billions of dollars in revenues off the deal.

Holtec, NRC, and DOE need to stop violating the EJ of Indigenous Nations, and other low income and/or people of color communities, as with such radioactive waste dump schemes, as

well as with the PNP reactor restart and new build schemes! They must cease and desist with the environmental injustice and radioactive racism!

Why are numerous other relevant Indigenous Nations also excluded from NRC's and DOE's EA list above? What about the Mascouten (also known as the Mascoutin, Mathkoutench, Muscoden, and Muskatoon)? What about the Kiash Matchitiwuk (aka the Menominee)? The Meshkwahkîha (Meshkwaki)? What about additional bands of the Myaamiaki (Miami) not listed above? What about the Waayahtanwaki (Wea)? The Peeyankihšiaki (Piankashaw)? What about the Kiikaapoi (Kickapoo)? What about the Huron? These are all Indigenous Nations with connections to southwest Michigan, or further downwind and downstream in the Great Lakes region and the Great Lakes State, that have been excluded by DOE and NRC, according to the list provided in the EA above. Thus, the EA should be withdrawn, and replaced with a EIS/PEIS, including all these, and any other Indigenous Nations with connections to s.w. MI, and all points downwind and downstream in the Great Lakes region that could be impacted by the PNP restart and SMR new builds, thus far neglected. In the PEIS, all Indigenous Nations with an interest in all of the proposed zombie reactor restart schemes across the US must be included.

What about "Canadian" tribes? Since many Indigenous Nations straddle the US/Canadian border, and are sovereign Indigenous Nations, why doesn't NRC have to notify them, too? What about the Western Shoshone, who could well be targeted again by NRC and DOE for the US HLRW dump long targeted at Yucca Mountain? What about the Skull Valley Goshutes? After all, PFS, LLC's CISF is still on the books at NRC as an approved license. PFS's license has never been terminated, even though NRC falsely reported it had been, in the ISP and Holtec CISF NEPA document executive summaries included in the related public comment proceedings of recent years. This remains the case, even though multiple commenters, including Don Hancock of SRIC, and Kevin Kamps of Beyond Nuclear, and others, called NRC's attention to this mistake in the NRC documents.

All the tribes impacted by the DOE's Orwellian "Consent-Based Siting" CISFs initiative should also be included in the EIS/PEIS for the PNP restart and SMR new builds schemes. After all, they could well end up "hosting" PNP's already vast, and perhaps growing quantity, of irradiated nuclear fuel — not on an "interim" basis, but forevermore. NRC should be fully aware of all of this, since they are central to licensing all these dumps. As has been asked before, given NRC's violation of EJ in approving licenses for highly radioactive waste dumps targeting Indigenous Nations communities, does NRC stand for Nuclear RACISM Commission?! Likewise, does DOE stand for Department of Environmental Injustice?!]

P.132/242 ON PDF COUNTER (page 6-18)

NRC (U.S. Nuclear Regulatory Commission). 2024. Memorandum from L. Willingham, Project Manager, Environmental Project Management Branch 3, Division of Rulemaking, Environmental, and Financial Support, Office of Nuclear Material Safety and Safeguards, to D.

Barnhurst, Branch Chief, Environmental Project Management Branch 3, Division of Rulemaking, Environmental, and Financial Support, Office of Nuclear Material Safety and Safeguards, dated August 12, 2024, regarding “Summary of Public Scoping Meeting Related to the Potential Reauthorization of Power Operations for the Palisades Nuclear Plant (EPID Number: L-2024-LNE-0003) (Docket Number: 50-0255).” Washington, D.C. ADAMS Accession Package No. ML24221A033. TN10605.

[NRC and DOE have treated the PNP restart environmental scoping public comment meeting, and public comment opportunity beyond that, as part of their rapid fire, check the box exercise towards approving massive federal taxpayer bailouts, and needed regulatory approvals, as quickly as possible. Public comments from that proceeding have essentially and substantially been ignored, as the PNP restart juggernaut, aided and abetted by NRC and DOE, rolls on at increasing speed. The concerned public has been forced, time and time again, to attend numerous in-person public meetings, as well as virtual public meetings, associated with the PNP restart and SMR new builds, in order to try to protect health, safety, and the environment, against Holtec schemes that DOE and NRC seem too happy to rubberstamp. Such collusion was the root cause of the Fukushima Daiichi nuclear catastrophe in Japan, Japan’s Parliament concluded in 2012. There is such collusion in spades at Palisades.]

P.138/242 ON PDF COUNTER (page A-4)

Seema Verma, PNNL PhD Biological Sciences
MS Biosciences
BS Zoology
Graduate Certificate in Regulatory Sciences
2.5 years of experience in ***navigating Federal agency regulations including Title 10 Code of Federal Regulations***. Assessment of human health impacts from nonradiological contaminants and etiological agents for nuclear and renewable energy

[It’s telling that NRC and DOE had to have staff involved who are expert at “just” navigating the regulations and related documents involved in preparing this EA. Given how complex the processes and proceedings swirling around the Holtec PNP restart schemes are, why do NRC and DOE provide no funding for concerned members of the public, and environmental groups, to take part in preparing public comments, intervening in licensing processes, etc.? In Canada, there is federal government funding support provided for such public participation. Why not in the US?!]

P.135/242 ON PDF COUNTER (page A-1)

APPENDIX A LIST OF PREPARERS

[See the Upton Sinclair quote cited above. We object to the “Lies, Damn Lies, and Statistics,” and other clever tricks, used by DOE, NRC, and State of Michigan agency staffers, in order to find no significant impact whatsoever with the PNP restart scheme, and SMR new builds scheme. How absurd on its face. Is it because the environment, as well as health and safety of the public, that would be so negatively effected by these Holtec schemes, are not significant themselves, in the eyes of the agencies? It seems to be the only logical conclusion to draw re: their FONSI. Is that why the major impacts and risks have been downplayed, whitewashed, and greenwashed to mere FONSI status, in order to get on with the rubberstamping of approvals? Do these agencies serve the public, whose taxpayer dollars pay these agencies’ staffers, or do they serve Holtec? It seems they serve the public all right, up for dinner, to Holtec. Of course, the nuclear power industry pays licensing fees to NRC, some 90% of the agency’s budget. So in terms of NRC’s collusion, the nuclear power industry is getting a great return on its investment.]

P.143/242 ON PDF COUNTER (page C-1)

APPENDIX C APPLICABLE LAWS, REGULATIONS AND OTHER REQUIREMENTS

It is the NRC’s policy to make sure that nuclear power plants are operated in a manner that provides adequate protection of public health and safety and protection of the environment through compliance with applicable Federal and State laws, regulations, and other requirements, as appropriate.

[NRC is not providing reasonable assurance of adequate protection, not by a long shot. The PNP restart scheme can serve as Exhibit A in this regard. The Atomic Energy Act should be amended so that states have jurisdiction and authority over radiological safety and health protection too, given NRC’s utter dereliction of duty, and AWOL status, on its health, safety, and environmental protection mandates. Of course, this assumes states will protect their own citizens and residents. The Whitmer administration has not done so, with its “mindless advocacy,” to quote UCS nuclear power safety director Dr. Ed Lyman, in favor of the PNP restart scheme. The Democratic majorities in both the Michigan State House and Senate likewise violated the public interest, environmental, health and safety protections, by approving Gov. Whitmer’s request for \$300 million towards the PNP restart scheme, in 2023 and 2024. The Biden administration, and Democratic majority U.S. House and Senate chambers, likewise violated the public interest, health and safety protections, by including nuclear power bailouts in the Inflation Reduction Act of 2022, and Infrastructure Investment and Jobs Act of 2021, now being used to enable Holtec to restart PNP, and perhaps also to enable Holtec to build SMRs at PNP, as well as at the Big Rock Point nuclear power plant site.]

In addition to carrying out some Federal programs, State legislatures develop their own laws. State statutes can supplement, as well as implement, Federal laws for the protection of their air, surface water, and groundwater resources. State legislation may address solid waste management programs, locally rare or endangered species, and historic and cultural resources.

[The NRC cites the State of Michigan's so-called "clean" energy law as mandating the purpose and need, in this EA, for the PNP zombie reactor restart scheme. But of course, nuclear power is not "clean" — far from it. Elections have consequences, because laws have consequences, as does the enforcement of law, as does the end of the rule of law, or the decision to not enforce laws, such as NRC's mandate to protect public health and safety and the environment, which it never seems to get around to doing.]

P.144/242 ON PDF COUNTER (page C-2)

C.1 Federal and State Requirements

The Palisades Nuclear Plant (Palisades) is subject to various Federal and State requirements. As a convenient source of references of environmental requirements, Table C-1 below lists principal Federal and State approvals necessary for the resumption of power operations at Palisades.

Atomic Energy Act,
(42 U.S.C. 2011
et seq.)

[Dr. Judith H. Johnsrud, a founding board of directors member of both NIRS and Beyond Nuclear, said we have to change the laws of the land, such as the Atomic Energy Act, to address these very serious problems associated with nuclear power. Indeed we do.]

Current operating
license

National
Environmental Policy
Act of 1969
(42 U.S.C. 4321
et seq.)

NEPA requires Federal agencies to integrate environmental values into their process by considering the environmental impacts of proposed Federal actions and reasonable

alternatives to those actions. NEPA establishes policy, sets goals (in Section 101), and provides means (in Section 102) for carrying out the policy. NEPA Section 102(2) contains action-forcing provisions to ensure that Federal agencies follow the letter and spirit of the Act. For major Federal actions significantly affecting the quality of the human environment, Section 102(2)(C) of NEPA requires Federal agencies to prepare a detailed statement that includes the environmental impacts of the proposed action and other specified information.

[NRC and DOE's EA here does not comply with NEPA, for all of the reasons we've cited in these comments. The alternatives section is a bad joke. The purpose and need statement is simply self-fulfilling — that alone is a violation of NEPA. NRC and DOE have made a mockery of NEPA with this EA. An EIS/PEIS is required. NRC and DOE should not make a mockery of that as well.]

NEPA Section 102(2) contains action-forcing provisions to ensure that Federal agencies follow the letter and *spirit of the Act*.

[Yeah right — that's NOT working! Not in this EA, or entire environmental review proceeding!]

For major Federal actions significantly affecting the quality of the human environment, Section 102(2)(C) of NEPA requires Federal agencies to prepare a detailed statement that includes the environmental impacts of the proposed action and other specified information.

[The impacts analyses in this EA is also a bad joke — the DOE and NRC exhibit willful blindness, countless times. Their FONSI must mean they regard the people and environment around PNP out to great distances in place and time as insignificant — it's the only logical explanation for the FONSI determination, given the clear, major, negative impacts and risks associated with PNP's restart, across the board.]

P.145/242 ON PDF COUNTER (page C-3)

Current operating
license

10 CFR Part 20

Regulations in 10 CFR Part 20, “Standards for Protection Against Radiation,” establish standards for protection against

ionizing radiation resulting from activities conducted under licenses issued by the NRC. These regulations are issued under the AEA and the Energy Reorganization Act of 1974, as amended. The purpose of these regulations is to control the receipt, possession, use, transfer, and disposal of licensed material by any licensee in such a manner that the total dose to an individual (including doses resulting from licensed and unlicensed radioactive material and from radiation sources other than background radiation) does not exceed the standards for protection against radiation prescribed in the regulations in this part.

[Again, why do US workers have a 5 R/yr dose limit, while their international colleagues have a 2 R/yr dose limit? Compare the US government human radiation experimentation revelations report published during the Clinton administration by Energy Secretary Hazel O'Leary. Isn't the 5 R/yr dose limit for US nuclear workers an ongoing human radiation experiment? Similarly, might not the PAGs (Protective Action Guidelines) at EPA, developed by its Office of Radiation and Indoor Air, and signed by EPA Administrator Gina McCarthy, on the Obama administration's last day in office (!), yet another human radiation experiment in the works, if they ever get applied, as during vaguely defined nuclear emergencies, as could so easily unfold at PNP if it is restarted?]

Current operating
license

10 CFR Part 51

Regulations in 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," contain the NRC's regulations that implement NEPA.

[NRC has made a mockery of their own implementing regulations, and certainly of NEPA itself. NRC's EA here is in violation of NEPA, in multiple ways.]

The CAA is intended to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population.

[Well, this EA documents disproportionate asthma in the Township of Covert, which has a large percentage of African American residents, as well as a high rate of poverty. How NRC and DOE could conclude that EJ impacts are FONSI is baffling. Certainly the spirit and

letter of CAA and NEPA are being violated in Covert, the latter including by NRC and DOE's EJ analysis and conclusions in this EA/FONSI itself!]

CAA

Section 112 requires specific standards for release of hazardous air pollutants (including radionuclides). These standards are implemented through plans developed by each State and approved by the EPA.

[Must be why nuke industry is so in control of radiation and indoor air office at EPA — they comprise it, and control it, and own it — their people run it; the industry runs it; it's completely captured — see our discussion of PAGs above — the outrageous, even shocking “big boy pants” comment by an EPA official in the past — the industry runs the agencies; the industry owns them; is it because regulatory staff hope to get more lucrative jobs within the industry itself, if they can win favor, and impress the industry with their cynical propagandizing and rubberstamping abilities? Such collusion, between industry and various government agencies, such as EPA, DOE, and NRC, can and does lead to nuclear catastrophes, as at Fukushima, so concluded the Japanese Parliament in 2012. There is such collusion in spades at Palisades! And thus we drift towards unparalleled catastrophe, to quote Einstein.]

P.146/242 ON PDF COUNTER (page C-4)

Air quality
protection

Natural Resources
and Environmental
Protection, Act 451
of 1994,
Section 5506(1)

After the established compliance date, any source required to obtain a Title V operating permit under Section 502(a) of the Clean Air Act may not operate unless it holds a valid permit issued by the department.

[DOES NRC have exclusive jurisdiction over radiological health, or does this indicate it does NOT have exclusive jurisdiction over radiologica health? What other federal executive branch agencies have jurisdiction over radiological health? What jurisdiction do states have over radiological health? If DOE and NRC would provide answers to these questions in an EIS/PEIS, we would appreciate it. And if NRC and DOE would notify those other agencies, and the State of Michigan government, as well as other states

impacted by the PNP restart and SMR new builds, of this information, that too would be very appreciated.]

Air quality
protection

Natural Resources
and Environmental
Protection Act, Act
451 of 1994, Section
5508

Under Michigan law, sources or equipment regulated by Federal air toxics standards under Section 112 of the Clean Air Act are exempt from state requirements for best available control technology for toxics or hazardous air pollutants.

[Please explain more about this relationship between federal or state law. Which “department” above is the EA referring to? If such technology has no better competition, it is declared best available then? (See MgCl facility comments made above — a unique facility, by definition, is “best available technology,” even if it also the worst available technology, because there is no better technology. No matter how polluting it is. The federal agencies really should be required to do better than this in the Year 2025, shouldn’t they, as public health and environmental health continue to decline dangerously, given such loopholes in environmental protection and health protection laws — wide enough to drive a Mobile Chornobyl Heavy Haul Truck through! If DOE and NRC could clarify all this in an EIS/PEIS, we’d really appreciate it.)]

P.147/242 ON PDF COUNTER (page C-5)

CWA
NPDES

The
EPA is authorized under the CWA to directly implement the NPDES program; however, the EPA has authorized many States to implement all or parts of the national program

[Please see the Oct. 2024 public comments to MI EGLE re: the NPDES web posting, cited above.]

Water-resources
protection

Coastal Zone
Management Act of
1972, as amended
(16 U.S.C. 1451

et seq.)

Congress enacted the CZMA in 1972 to address the increasing pressures of over- development upon the Nation's coastal resources. The National Oceanic and Atmospheric Administration administers the CZMA. The CZMA encourages States to preserve, protect, develop, and, where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats. ***Participation by States is voluntary.*** To encourage States to participate, the CZMA makes Federal financial assistance available to any coastal State or territory, including those on the Great Lakes, as long as the State or territory is willing to develop and implement a comprehensive coastal management program. ***[Emphasis added.]***

[Voluntary?! Shouldn't such protection of the environment be mandatory?!]

P.148/242 ON PDF COUNTER (page C-6)

Water-resources
protection

Safe Drinking Water
Act of 1974 (42
U.S.C. 300(f)
et seq.)

The SDWA was enacted to protect the quality of public water supplies and sources of drinking water and establishes minimum national standards for public water supply systems in the form of maximum contaminant levels for pollutants, including radionuclides. Other programs established by the SDWA include the Sole Source Aquifer Program, the Wellhead Protection Program, and the Underground Injection Control Program. In addition, the SDWA protects underground sources of drinking water from releases and spills of contaminants.

[Aren't private drinking water wells a major loophole — there are no environmental and health protection standards whatsoever, right?! This is of utmost relevance to the PNP restart scheme, and SMRs new build scheme, in that the lack of MCL in PNP groundwater means PPCC drinking water wells could become dangerously contaminated with hazardous radioactive isotopes and hazardous toxic chemicals. PPCC residents will drink such hazardous well water, unless careful monitoring against all such hazards takes place regularly, going forward. Why is such a risk and burden put on the residents of PPCC?!]

P.149/242 ON PDF COUNTER (page C-7)

Waste

management and
pollution prevention

Nuclear Waste
Policy Act of 1982
(42 U.S.C. 10101
et seq.)

The Nuclear Waste Policy Act provides for the research and development of repositories for the disposal of high-level radioactive waste, spent nuclear fuel, and low-level radioactive waste. Title I includes the provisions for the disposal and storage of high-level radioactive waste and spent nuclear fuel. Subtitle A of Title I delineates the requirements for site characterization and construction of the repository and the participation of States and other local governments in the selection process. Subtitles B, C, and D of Title I deal with the specific issues for interim storage, monitored retrievable storage, and low-level radioactive waste.

[Irony NRC and DOE have included this. SCOTUS will hear oral arguments about just this, and other laws, on 3/5/25, re: Holtec's (and ISP's) CISFs, targeting NM (and TX), which NRC was only too happy to license, laws and regulations to the contrary be damned.]

Waste
management and
pollution prevention

Low-Level
Radioactive Waste
Policy Act of 1980,
as amended
(42 U.S.C. 2021b
et seq.)

The Low-Level Radioactive Waste Policy Act amended the AEA to improve the procedures for implementation of compacts that provide for the establishment and operation of regional low-level radioactive waste disposal facilities. It also allows Congress to grant consent for certain interstate compacts. The amended Act sets forth the responsibilities for disposal of low-level waste by States or inter-State compacts. The Act states the amount of waste that certain low-level waste recipients can receive over a set time period. The amount of low-level radioactive waste generated by both pressurized and boiling water reactor types is allocated over a transition period until a local waste facility becomes operational.

[Also ironic to read this here. Don't Waste MI formed in the first place to fight LLRW dumping in MI by 8 states (7 others, plus MI itself). DWM went on to put a real focus on PNP in particular, over the course of many decades now. And yet NRC won't recognize DWM's standing in this

proceeding?! DWM is in good company — that's how NRC treated AFES in NM in the Holtec CISF proceeding. NRC would not even recognize AFES's standing. So, NRC said, it didn't even need to deal with AFES's contentions at all. AFES's contentions were about EJ. AFES was begging NRC to be EJ compliant. NRC has long bragged about its EJ performance and policies. And yet NRC would not even recognize the EJ group in s.e. NM formed to oppose Holtec's CISF, let alone admit any of its EJ contentions for hearings on the merits. This is all so Orwellian. During a Covid-19 pandemic era virtual meeting with then-NRC chairman, and still NRC commissioner, Chris Hanson, which Kevin Kamps of Beyond Nuclear attended, NRC Chairman Hanson bragged up NRC's EJ policies and performance, with the Palisades Nuclear Plant aerial photo behind him on screen. Hanson is from PNP's company town, after all, and in favor of all things Palisades, including Holtec's and NRC's getting "creative" in restarting Palisades, as he more recently testified in congressional hearings. When Kamps challenged Hanson's proud EJ assertions, Hanson seemed shocked, shocked. NRC rammed its draft EIS public comment proceedings through on the Holtec and ISP CISFs, despite widespread calls, by environmental watchdogs and many members of congress, not to do so. This was another EJ violation, during a national emergency, in parts of the country where low income, people of color communities directly majorly impacted by the CISFs, were being especially hard hit by Covid-19. Shame on NRC for all these shameful EJ violations over a very long period of time now.]

P.149-150/242 ON PDF COUNTER (page C-7 to C-8)

Uranium Fuel Cycle Environmental

Standards for Uranium Fuel Cycle
(40 CFR Part 190,
Subpart B)

These regulations establish maximum doses to the body or organs of members of the public because of normal operational releases from uranium fuel cycle activities, including uranium enrichment. These regulations were promulgated by the EPA under the authority of the AEA, as amended, and have been incorporated by reference in the NRC regulations in 10 CFR 20.1301(e).

[This seems to be another example of EPA having jurisdiction over radiological health and safety — not just the NRC. Does this apply to water protections? Air protections? Whyt wasn't EPA taken on as a cooperating agency in this environmental review, like DOE has been, then?]

P.150/242 ON PDF COUNTER (page C-8)

Protected species Endangered Species
Act (16 U.S.C. 1531
et seq.)

The Endangered Species Act was enacted to prevent the further decline of endangered and threatened species and to restore those species and their critical habitats. Section 7, "Interagency Cooperation," of the Act requires Federal agencies to consult with the FWS or the NMFS on Federal actions that may affect listed species or designated critical habitats.

[nrc's ea violates the spirit and letter of these endangered species, threatened species, and species of special concern protection laws]

P.150-151/242 ON PDF COUNTER (page C-8 to C-9)

Magnuson-Stevens
Fishery
Conservation and Management Act, as
amended by the
Sustainable
Fisheries 28 Act of
1996 (16 U.S.C.
1801 et seq.)

[radiogenic insertion of the #28? Are the numerals <28> in need of deletion? Why are they there?]

P.152/242 ON PDF COUNTER (page C-10)

Protected Habitat Sand Dunes
Protection and
Management

(Part
353 of the Natural
Resources and
Environmental
Protection Act)

To protect sand dunes along the shores of Lake Michigan and Lake Superior, Michigan designated approximately 74,000 ac of dunes as CDAs. Certain activities within CDAs require a permit from Michigan EGLE, including those that change dune contours, or propose new industrial or commercial uses. For shoreline activities within CDAs, applicants should submit a Michigan EGLE/USACE joint permit application.

[compare this to nrc's allegation that PNP is a wasteland, above. PNP should never have been built where it is. it has done forever damage to the critical dunes area in the midst of which it was built. And now they want to compound the damage with 2 new SMRs, operating 40, 60, 80, or even 100 years into the future, starting in 2030?! Alongside the zombie restarted reactor, operating from 2025 to 2051, or longer, truth be told?!]

P.152/242 ON PDF COUNTER (page C-10)

C.2 Operating Permits and Other Requirements

[again, strategically, which card(s) to knock out to bring the whole house down?]

Renewed Facility
Operating License

NRC

DPR-20

03/24/2031

Operation of
Palisades(a)

(a) Currently, the Renewed Facility Operating License at Palisades exists but only allows authorization for decommissioning and associated activities, not for power operations or fueling of the reactor.

*["Renewed Facility
Operating License...*

authorizing ...

*Operation of
Palisades(a)"*

is shown NOT to be the case, once you read the footnote! So NRC engages in deception, misleading, and obfuscation, yet again. Keep the public confused with fission and fusion. Orwellian. Not plain English. Doesn't law require plain NRC to speak plain English? This seems to be intentional obfuscation, torturing and even murder of the English language.]

P.153/242 ON PDF COUNTER (page C-11)

Management of the
industrial **sites** storm
water runoff and storm
water inspection
program

[radioactive radiogenic apoptosis of the apostrophe mark — should be sites']]

P.154/242 ON PDF COUNTER (page C-12)

DNR = Department of Fish and Wildlife

[inaccurate, right? DNR = Department of Natural Resources, it would seem?]

EGLE = Michigan Department of Environmental, Great Lakes, and Energy

also inaccurate — al needed on the end of Environment]]

P.155/242 ON PDF COUNTER (page D-1)

Rev. Edward Pickney

[misspelled Pinckney — an n is missing, the first one is need]

P.156/242 ON PDF COUNTER (D-2)

Grand River Bands of Ottawa Indians

[Compare this mention of Grand River Bands of Ottawa Indians to the following in the EA:

P.131/242 ON PDF COUNTER (page 6-17)

NRC (U.S. Nuclear Regulatory Commission). 2024. Letter from T. Smith, Acting Deputy Director, Division of Rulemaking, Environmental, and Financial Support, Office of Nuclear Material Safety and Safeguards, to R. Blanchard, Tribal Chairman, Bad River Band of the Lake Superior Tribe of Chippewa Indians (Wisconsin); W. Gravelle, President, Bay Mills Indian Community; C.J. Chavers, Tribal Chairwoman, Bois Forte Band (Nett Lake) of the Minnesota Chippewa Tribe; H. Baker, Chairman, Chippewa Cree Indians of the Rocky Boy's Reservation of Montana; J. Barrett, Chairman, Citizen Potawatomi Nation; J.A. Crawford, Chairman, Forest County Potawatomi Community; R. Deschampe, Chairman, Grand Portage Band of Lake Superior Chippewa; S. Witherspoon, Chairwoman, Grand Traverse Band; K. Meshigaud, Chairperson, Hannahville Indian Community; L.D. Taylor, Chairman, Lac Courte Oreilles Band of Lake Superior Chippewa; J.D. Johnson, Sr., President, Lac du Flambeau Band of Lake Superior Chippewa Indians; J. Williams Jr., Chairman, Lac Vieux Desert Band of Lake Superior Chippewa Indians; F. Jackson, Sr., Chairperson, Leech Lake Band of Ojibwe; L. Romanelli, Ogema Little River Band of Ottawa Indians; R. Gasco, Chairperson, Little Traverse Bay Bands of Odawa Indians; B. Peters, Tribal Chairman, Match-e-be-nash-she-wish Band of Pottawatomi Indians; G. Kakkak, Chairwoman, Menominee Indian Tribe of Wisconsin; D.G. Lankford, Chief, Miami Tribe of Oklahoma; M. Benjamin, Chairperson, Mille Lacs Band of Ojibwe; D. Rios, Chairperson, Nottawaseppi Huron Band of the Potawatomi; K. Dixon, Chief, Ottawa Tribe of Oklahoma; M.J. Wesaw, Chairman, Pokagon Band of Potawatomi Indians; J. Rupnick, Chairman, Prairie Band Potawatomi Nation; G. Johnson, President, Prairie Island Indian Community; J.D. Joaquin, President, Quechan Tribe of the Fort Yuma Indian Reservation (California and Arizona); N. Boyd, Chairperson, Red Cliff Band of Lake Superior Chippewa Indians (Wisconsin); D.S. Sr., Chairperson, Red Lake Band of Chippewa Indians (Minnesota); T. Davis, Chief, Saginaw Chippewa Indian Tribe of Michigan; T. Fowler, Chairperson, Saint Croix Chippewa Indians of Wisconsin; A. Lowes, Chairperson, Sault Ste. Marie Tribe of

Chippewa Indians; J. Azure, Chairperson Turtle Mountain Band of Chippewa Indians (North Dakota); and M. Fairbanks, Chairperson, White Earth Band of Minnesota Chippewa Tribe; dated November 4, 2024, regarding “Area of Potential Effects Notification and Continuing Section 106 Consultation for the Environmental Review of Holtec Decommissioning International, LLC’s Licensing and Regulatory Requests for Reauthorization of Power Operations at Palisades Nuclear Plant (EPID Number: L-2024-LNE-0003) (Docket Number: 50-255).” Washington, D.C. ADAMS Accession Package No. ML24292A044. TN10840.

They are not mentioned there. But they are mentioned here, and later. These inconsistencies appear to just be in error, and have created unnecessary confusion. Another example of sloppy, imprecise work in this EA, about a most serious topic — government to government consultation with sovereign Indigenous Nations, with whom the US has entered into treaty relationships, the highest law of the land, equal in stature to the U.S. Constitution itself. NRC and DOE should withdraw this sloppy EA, and undertake a full EIS/PEIS, and not make such sloppy errors in it.]

P.157/242 ON PDF COUNTER (page D-3)

Prairie Band Potawatomi Nation

[Similarly here, it appears that Prairie Island was also mentioned above? But not here? Inconsistency, sloppy, confusing. Serious errors that deserve correction in an EIS/PEIS.]

Quechan Tribe of the Fort Yuma Indian
Reservation

[Why are they listed? No specifics are given in the EA as to why certain Indigenous Nations are included — even one in the far Southwest — while others with clearer connections to s.w. MI are not included at all.]]

Table D-1 List of Agencies, Organizations, Indian Tribes, and Persons Contacted by
NRC during the Environmental Review of the Draft Palisades Nuclear Plant
Environmental Assessment

P.155/242 ON PDF COUNTER (page D-1), and following

[Compare to list above, especially re: Indigenous Nations. Consistency should be maintained throughout. All Indigenous Nations with connection to PNP site, and region that could be impacted by restart and SMR new builds — a very large region, should be included, as we commented above.]

P.159/242 ON PDF COUNTER (page E-1)

APPENDIX E
CHRONOLOGY OF ENVIRONMENTAL REVIEW CORRESPONDENCE

Table E-1 Environmental Review Correspondence for the Resumption of
Power Operations Activities at Palisades

02/01/2023

Holtec Decommissioning
International, LLC

Letter described **regulatory path to
reauthorize power operations** at
the Palisades Nuclear Plant **[Emphasis added.]**

ML23032A399

[The tail wags the dog — Holtec has been telling NRC what to do the whole time. NRC has done acrobatics to accommodate Holtec.]

*If this is the case, it may explain why was wet lay up for Steam Generators not implemented till **May 2024**?! After all, in its incompetence and inexperience — Holtec has never operated a reactor, especially not one that's been a lemon from the get-go, and is now dangerously age-degraded — Holtec seems to have not even known it should put the steam generators into wet lay up, if it planned to restart the reactor instead of decommission it. Our intervening environmental coalition expert witness, Arnie Gundersen, has warned about this for years, including in declarations filed in ASLB proceedings that NRC staff and even Holtec have (hopefully, I guess we are assuming) read. And yet not even the NRC staff nor Holtec attorneys thought to inform Holtec decision makers that, er, um, perhaps they should put the steam generators into wet lay up?! Perhaps this now makes sense, since Holtec tells NRC what to do, and not the other way around. The accelerated steam generator tube degradation, from 2022 to 2024, is a self-inflicted wound! Now Holtec proposes mere BAND-AID fixes?! And NRC is seriously considering approving them as “good enough”?! Astounding betrayal of NRC's public health, safety, and environmental protection mandates!*

*In fact, Holtec and Whitmer publicly announced holtec's restart scheme on **9/9/22** — why was wet lay up for SGs not implemented till **May 2024**?*

In fact, Whitmer first floated the trail balloon for restart on 4/20/22 — Holtec acquired PNP on 6/28/22 — why didn't Entergy implement wet lay up for SGs at Holtec's (and Whitmer's, and NRC's) request immediately upon permanent shut down on 5/20/22? Why didn't Holtec do it on 6/28/22? Why didn't Holtec do it on 7/5/22 — oh, it was too busy applying to DOE for billions in bailouts for the restart scheme — making DOE in the know, and complicit with these grave mistakes, as well. After all, DOE has rewarded Holtec for its grave errors, with \$1.52 billion in nuclear loan guarantees. And USDA has rewarded Holtec for its grave errors, by granting the rural electric co-ops with \$1.3 billion towards paying for PNP's gouge of 57% or more above market rates, under the PPA. And the State of MI (Gov. Whitmer, the state legislature) have rewarded Holtec \$300 million for its grave errors. Given all this, why wasn't steam generator wet lay up implemented till May 2024?! Holtec's criminal negligence has been aided and abetted by these federal and state government agencies!]

11/27/2023

U.S. Nuclear Regulatory
Commission

Memorandum for the Palisades
Restart Panel Charter

ML23297A053

[This document essentially said, PNP WILL be restarted — that is the mandate — no if's, and's, or but's. The writing is on the wall. NRC is merely going through the motions, an illusion of safety regulation, environmental and health regulation. It is completely captured by the company and industry it is supposed to regulate. It is aiding and abetting Holtec. NRC is colluding with and complicit with Holtec. Even NRC Chairman Hanson admitted to a congressional committee at a hearing that both Holtec and NRC had to get "creative" to figure out how to allow PNP to restart, since there are no applicable regulations. They've had to cobble something together, ad hoc. It's a grand nuclear experiment, on the shore of Lake Michigan.]

P.160/242 ON PDF COUNTER (page E-2)

04/03/2024

Holtec International

Presentation on Palisades
Construction Permit Application:
Initial Environmental and Site
Characterization for Small Modular
Reactors

ML24086A582

[This was nearly two years after Krishna Singh first floated the idea of building SMRs at PNP, rather than decommissioning it. He did so in early April 2022, in an article in the ExchangeMonitor. In fact, the 7/5/22 Holtec bailout application to DOE — which was done in secret — told DOE that Holtec's main motivation for acquiring PNP was not for decommissioning, per se, but rather to bank the sites for SMR development. Holtec would not even announce it had applied for bailouts till 9/9/22, the same day it announced that it was the company that would restart PNP, and that decommissioning was indefinitely off. Although it continued to threaten NRC, DOE, and Gov. Whitmer and the MI state legislature, that if regulatory approval and bailouts weren't forthcoming, fast, it would return to the decommissioning plan. In fact, when DOE rejected its CNC application, Holtec announced on 11/18/22 that it was no longer planning to restart PNP, but would return to decommissioning it. But then on 12/20/22, Holtec reversed itself yet again, announcing it was back to restarting PNP, and back to seeking bailouts. All through that roller coaster ride, and for another 1.5 years thereafter, Holtec never got around to putting the steam generators in wet lay up. It would seem Holtec's main motivation is greed, not public health, safety, or environmental protection. NRC has aided and abetted Holtec in all this outrageous behavior, every step of the way, as have DOE, and the State of MI.]

06/21/2024

Match-E-Be-Nash-She-Wish
Band of Pottawatomie Indians

Response to U.S. Nuclear
Regulatory Commission email
Notifying of Activities Regarding
the Palisades Restart

ML24214A066

[This entry appears to be out of chronological order. Why did DOE and NRC not even summarize what the Indigenous Nation SAID in its communication? The burden is on us to track down these documents in their entirety? It is not unlike Holtec announcing it had applied for bailouts, but not providing transparency by publishing publicly the application itself. Beyond Nuclear had to FOIA request it. Now DOE and NRC do not reveal the contents of communications, but rather merely announce that communications exist. This is not a transparent process. Which is outrageous, given the huge amounts of public bailouts involved. Not to mention the environmental, health, and safety risks.]

P.162/242 ON PDF COUNTER (page E-4)

07/01/2024

U.S. Nuclear Regulatory
Commission

Letter initiating the scoping
process to prepare an
environmental assessment to the
Michigan Department of
Environment, Great Lakes and
Energy (Kalamazoo District Office)

ML24163A192

[We didn't even know about the existence of this office. Why has this office conducted zero public meetings, communications, or interactions with local concerned citizens and residents in s.w. MI?]

07/01/2024

U.S. Nuclear Regulatory
Commission

Letter initiating the scoping
process to prepare an
environmental assessment to the
Michigan Department of Natural

Resources (Fisheries Division)

ML24163A260

[This may explain that mistranslation of the DNR acronym not far above — is this the DNR NRC and DOE spoke of above, but the name of the department did not match the acronym given? Again, the inconsistencies and sloppiness create unnecessary and unhelpful confusion. An EIS/PEIS should be undertaken to correct these mistakes, and so much more.]

P.165/242 ON PDF COUNTER (page E-7)

07/01/2024

U.S. Nuclear Regulatory
Commission

Letter initiating the scoping
process to prepare an
environmental assessment to the
Prairie Island Indian Community

ML24183A151

[it's mentioned here. It's mentioned above. But skipped in the section in between, as I noted not far above. More inconsistencies, sloppiness, confusion.]

P.171/242 ON PDF COUNTER (page F-1)

APPENDIX F

CLIMATE CHANGE AND GREENHOUSE GASES

F.1 Affected Environment

The U.S. Nuclear Regulatory Commission (NRC or Commission) has determined climate change may alter the affected environment described in Section 3 of this environmental assessment (EA) during the period of preparation for the resumption or power operations or resumption of power operations at the Palisades Nuclear Power Plant (Palisades) (the renewed operating license issued in 2007 expires in 2031). **Climate change is a global phenomenon, and the activities associated with the continued operation of Palisades are not expected to appreciably alter these trends.** However, climate change may create a new environment that could result in changed impacts from the ongoing operations or impose operational restrictions on the site's safety and performance. This section documents the NRC staff's assessment of the potential effects of climate change on its evaluation of the environmental impacts of the proposed continued operation of Palisades. **[Emphasis added.]**

[The emphasized sentence above seems to undermine/contradict the purpose and need statement, which is that Palisades' restart is to fulfill the MI "clean" energy law (never mind that nuclear power is not clean). The next sentence after the emphasized sentence admits there could well be trouble brewing for Palisades, from climate chaos induced extreme weather. And yet this very real and severe risk is not dealt with in any meaningful way in this insufficient EA. An EIS/PEIS dealing with it meaningfully is required under NEPA, given the large risks and impacts and effects.]

Climate change projections in the latest USGCRP reports (i.e., NCA5) cover the period through 2100 and are generally expressed as a change expected for the mid-21st century (e.g., 2036–2065) or late 21st century (e.g., 2071–2099) relative to average conditions existing in the near-present (1991–2020). These projections are relevant to the evaluation of Palisades' continued operation, particularly as the plant proposes to operate until 2031.

[But this is of course willfully blind and silent here to PNP's stated intent to apply for a 2031-2051 license extension, not to mention two SMR-300s, which could operate past 2100.]

P.172/242 ON PDF COUNTER (page F-2)

These temperature changes have implications for energy demand and infrastructure: under a very high emissions scenario, the annual electricity demand is projected to increase by 40–50 percent from 2020 to 2050, while *rising air temperatures are expected to reduce summer transmission line capacity by 6 percent in the region. [Emphasis added.]*

[That's a vicious cycle!]

Much of Appendix F would seem to bolster Arnie Gundersen's climate related declarations, and the environmental coalition's contentions based upon them in the ASLB proceeding, especially this passage on p. 172 of 242 on PDF counter:]

Beyond atmospheric warming, Lake Michigan's summer surface water temperatures have also been rising. From 1980 to 2021, the July to September average surface temperature of Lake Michigan increased by about 0.1°F (0.05°C) per year (USGCRP 2023-TN9762), and further increases are anticipated. Other observed changes in the Great Lakes region include increased variability in lake levels, higher evaporation and water temperatures, more intense precipitation events (including lake-effect snow), and shorter durations of snow and ice cover.

F.3 Environmental Consequences of *Preparation to Resumption* of Power Operations and the Resumption of Power Operations *[Emphasis added.]*

[badly worded — not good English — for might have worked, but not to]

P.173/242 ON PDF COUNTER (page F-3)

Starting

from the table (NRC 2018-TN5405) that identifies plausible connections between nuclear power station resource area concerns and likely climate change-caused alterations to the existing environment, the NRC staff generated a resource table specific to the Palisades region by removing irrelevant USGCRP climate impacts and NRC resource area issues from the master table. For example, climate impacts related to sea level rise were removed because of the site's inland location.

[well, it may be “inland,” as in not on an ocean coast, but it is on the shore of the Great Lakes, which are fresh water inland seas, the largest in the world, which could well also rise, with all that increased precipitation NRC just admitted to just above]

This suggests that, although winter and spring flooding may pose significant challenges, drier summer conditions are likely to persist, potentially affecting water availability in the region.

[Water unavailability, in the Great Lakes State?! Just ask Flint, Benton Harbor, etc., albeit due to lead poisoning in their cases. But this flooding in the wet season, and drought in the dry season, growing more and more extreme over time with global warming, are severe risks to the safe and efficient and environmentally and health protective operations of a restarted PNP, as well as to new SMRs there. NRC and DOE have not meaningfully addressed such worsening climate risks and extreme weather events in its EA. An EIS/PEIS doing so is required.]

The NRC staff used the site-specific resource table (PNNL 2024-TN10878) to assess whether the potential effects of climate change would alter the environmental impacts of the proposed action described in Section 3 of this EA.

The NRC staff concluded the expected impact determinations (not significant) assigned in Section 3 of this EA would not be altered by the projected effects of climate change. The NRC staff provides the following resource-specific justifications.

[What about risks of extreme weather caused by climate change causing reactor core meltdown at PNP? Or causing an indoor wet storage pool fire? Or even causing a dry cask storage pad failure, as into Lake Michigan — such as a major flooding or wind storm impact on these safety-significant SSCs? No meaningful analysis along these lines is to be found in the EA. Thus, its FONSI is fallacious.]

Dr. Landsman's warning in Feb. 1994 was of earthquake risks. But what about beach/dune erosion due to flooding, including by a tsunami wave, which could be caused by an earthquake, but could also be caused by extreme weather, induced by climate change? The White Hurricane of 1913 is a cautionary tale in this regard: this blizzard sent a 40-foot wall of water into Goderich, Ontario, Canada. If a tsunami wave on Lake Huron is possible, a tsunami wave on Lake Michigan is also possible. The two Great Lakes share a lot in common — in fact, they are conjoined, and thus are one and the same Lake! Not only underwater submersion risk, but also

burial under sand risk, exists at the PNP dry cask storage pads, both existing ones, and the third Holtec wants to add.]

Land Use and Visual Impacts

Projected climatological changes are not expected to impact land use or visual resources at Palisades. Changes in temperature and humidity could slightly alter the visual appearance or frequency of vapor plumes from the cooling towers, but the staff does not expect that those changes would be noticeable because vapor plumes from operation are an occasional occurrence under certain atmospheric conditions and winds off the lake can dissipate plumes

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close to the ground. Other visual impacts of operating the plant, would not substantially be affected by climate change. The site's industrial zoning remains appropriate, with no reclassification needed, even as regional ecological plans evolve to address climate changes. Access to land and water resources, including Lake Michigan, will remain stable, with only minor access restrictions possible if lake levels fluctuate. Overall, land use and zoning designations at Palisades are expected to remain consistent, with no major construction anticipated due to climate-related factors. The NRC staff expects that climate change would not alter conclusions made in this EA.

[This makes no sense. NRC = Nobody Really Cares. What about historic high Lake levels in spring 2020? Major erosion took place not far from Palisades. Of course, erosion at Palisades could implicate such safety-significant SSCs as dry cask storage, other radioactive waste facilities, and even the reactor(s), the restarted zombie, and the SMR new builds. As we've communicated to NRC numerous times in the past, the sand dunes at Palisades are very vulnerable to wind blown blow outs. Extreme weather, such as flooding, high winds, etc., due to climate chaos, could inflict major damage to PNP, implicating health, safety, security, and the environment, out to great distances. And again, PNP is a major eye sore, both day and night, both from land for miles to the north, and from sea, for many miles out. It mars what would otherwise be a beautiful landscape visually. It's all the worse to look at when you understand how much existential risk it represents for the Great Lakes, Great Lakes State, and beyond.]

Meteorology and Air Quality

Climatological changes may have a minor impact on air quality and meteorology during the resumption of power operations. ***Projected increases in temperature, humidity, and lake surface***

water temperature could lead to a small increase in the aerosol concentrations within the cooling tower plume; however, this impact is expected to be minor as the substantial majority of

aerosol concentrations in the plume are directly attributable to plant operations and are not significantly influenced by environmental conditions. Similarly, air quality impacts may see a slight increase in ground level ozone levels but are not significant enough to change the overall impact assessment as the precursor emissions attributable to Palisades are minimal. Therefore,

the NRC staff expects that climate change would not alter conclusions made in this EA.
[Emphasis added.]

[extreme weather, including extreme meteorology, due to climate change, could prove disastrous to and at PNP. *Arnie Gundersen's expert witness declaration rebuts this emphasized EA statement above.*]

Water Resources

Midcentury climatological changes, including increased winter and spring runoff and warmer Lake Michigan surface temperatures, may slightly alter surface runoff and infiltration patterns in southwest Michigan. However, these changes will be managed under applicable State and Federal water quality standards, such as the National Pollutant Discharge Elimination System permit, with best management practices in place. Although variability in Lake Michigan water levels and ice cover may occur, the volume of effluent discharges from Palisades will remain minimal compared to the lake's capacity, resulting in no significant impact on water quality or ice

cover. Water use by Palisades is projected to remain minor relative to Lake Michigan's total availability, with no substantial effect on regional water resources or other users. Climate change is not expected to have a significant change in the consumptive water use for the cooling towers because evaporation from the cooling towers might increase under a warming climate but would not be distinguishable from an inter- and intra-annual variability in current evaporation amounts. Climate change would have a minor impact on the volume of intake water because the warming experienced at the depth of the intake structure, 35 feet below, would be negligible especially when compared to the heat load removed by plant systems. Thus, despite probable shifts in hydrology due to climate projections, Palisades resumption of power operations are required to comply with environmental regulations, resulting in minimal impact on

water quality and availability. The NRC staff expects that climate change would not alter conclusions made in this EA.

[climate change could inflict LARGE impacts on PNP, meaning large impacts on Lake Michigan and the Great Lakes downstream, and all who depend on them. Rising Lake levels could alter flow dynamics at and around PNP. Radioactive contamination could find fast flow pathways into groundwater, and/or the Lake, both of which are drinking water supplies. Fisheries in the Lake could experience bioaccumulation of radioactivity. Irrigation water, whether drawn from groundwater or the Lake, could contaminate the food supply. Apex predators on the food chain, from humans to eagles and other carnivorous wildlife, would then be exposed to the worst, bioaccumulated doses.

Radioactive contaminants from PNP do not dilute in Lake Michigan, they build up. They are artificial, not natural. Artificial tritium doesn't dilute, it builds up. It should not be there in the first place. And it also bio-accumulates/magnifies/concentrates.

Ecological Resources

Projected increases in temperature and precipitation are not expected to substantially alter how

Palisades affects the terrestrial habitats on the site and surrounding landscape. Climate changes could potentially alter the hydrology of wetlands in the area, including potentially suitable habitat for the eastern Massasauga and several State-listed species, but the Palisades facilities would not substantially influence these changes. The vegetational composition of natural upland habitats in the region could also change, potentially affecting wildlife, but the

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presence of the Palisades facilities would not influence those changes. Increased precipitation could eventually allow more mesic vegetation and invasive plants to establish in the specialized open dune habitat presently suitable for Pitcher's thistle, but the Palisades facilities would not alter the dynamics of that change. If climate changes alter the water elevation in Lake Michigan, the width and littoral dynamics of the beaches in the region could change, affecting habitat for the rufa red knot and piping plover. However, the presence of the Palisades facilities would only influence the directly adjoining beaches, which have already been too heavily disturbed by armoring to provide suitable habitat for these species.

Projected increases in temperature and precipitation are not expected to significantly impact Palisades' effect on the aquatic ecology of Lake Michigan. The plant's influence extends to less than 0.0006 percent of the Lake, and potential changes in water levels or minor temperature increases have not historically resulted in notable ecological impacts. While a slight warming of Lake Michigan may affect biodiversity and food web dynamics, the localized discharges from Palisades, which affect a small area, are unlikely to cause noticeable changes to the broader aquatic ecosystem. Additionally, because the volume of water moving through the screen would not noticeably increase, any increases in impingement and entrainment would not be noticeable. Climatological changes may benefit invasive species more tolerant of warmer temperatures, but Palisades' limited area of influence is not expected to significantly alter the presence of such species. Enhanced coordination for aquatic resource protection may be needed, but the overall impact on aquatic ecology remains minimal. Therefore, the NRC staff expects that climate change would not alter conclusions made in this EA.

[Palisades has had a LARGE negative impacts and effects on ecological resources since 1967. Climate change adds its own LARGE negative impacts and effects on an ongoing basis. Indigenous species are being extirpated. Extinction rates will increase, due in part to Palisades' impacts and effects, as well as to the impacts of climate change. NRC and DOE shrug off these LARGE impacts and effects, in violation of NEPA.]

Historic and Cultural

While rising temperatures and increased runoff during spring and winter could potentially expose additional historical and cultural resources at the Palisades site, no impacts from climatological changes are expected on currently identified resources. There are no historic properties or other historic and cultural resources identified within the area of potential effects. Therefore, the NRC staff expects that climate change would not alter conclusions made in this EA.

[If increased runoff due to climate change were to expose burials, or buried culturally significant Indigenous Nations' sites, this would be a MAJOR impact on those Indigenous sacred sites.]

Again, how can NRC and DOE downplay this to the point of insignificance? NEPA requires a ardent look, not a flippant FONSI, not hardly a look]

Socioeconomics

The resumption of operations at Palisades is not expected to have a significant impact on local socioeconomic factors, including housing, public schools, recreational resources, emergency services, or transportation infrastructure. Although southwest Michigan may face increased rainfall and flood risks midcentury, potentially challenging transportation resilience, the plant's operations are not anticipated to affect these infrastructure systems. Impacts on employment, income, output, and tax revenue are projected to remain stable, with no additional climate change mitigation measures required. Therefore, anticipated climatological changes are unlikely to alter the established socioeconomic impacts for Palisades. The NRC staff expects that climate change would not alter conclusions made in this EA.

[We thought “jobs jobs jobs!!!” was purportedly part of the purpose and need, at least in the words of Gov. Whitmer and Energy Secretary Granholm on March 27, 2024 (the restart love fest hosted by Holtec at PNP), before, and since? And what about DOE’s so-called Community Benefits Plan? But now socioeconomics will barely notice PNP’s restart? Proponents of restart can’t have it both ways.]

Low income and/or people of color communities will be disproportionately impacted by climate change. They already are so by PNP. So the synergism of the two in the local region will be a double-whammy on these vulnerable communities.]

Environmental Justice

The EJ analysis for the Palisades site found no significant subsistence behaviors, cultural practices, or resource dependencies within the EJ affected environment. Although combined stressors from pollution, climate change, and the resumption of power operations could potentially exacerbate health disparities, the assessment projects these effects as not

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disproportionately high and adverse. Therefore, the NRC staff expects that climate change would not alter conclusions made in this EA.

[NRC EJ practices, and analyses, are themselves a violation of EJ. This has long been the case, and given this EA, still is. Palisades is a LARGE EJ violation. So too is climate change, as exacerbated by not only Palisades owners’ fossil fuel divisions (Consumers Energy’s, Entergy’s, and even Holtec’s), but also exacerbated by the climate mitigation opportunity costs that PNP’s zombie reactor restart, and SMR new builds, represents, as Dr. Jacobson has testified in this very ASLB proceeding in opposition to Holtec’s schemes at PNP.]

Human Health, Waste Management, Transportation and Accidents

Projected midcentury climate changes could influence the prevalence of etiological agents and occupational health risks; however, existing worker protection regulations are expected to

remain effective or ***adapt as necessary***. Climate change is not anticipated to alter operational noise levels at Palisades, so noise-related impacts should remain unchanged. While potential impacts from electromagnetic fields are uncertain, ***regulatory measures are expected to adjust to maintain occupational and public safety***. Overall, nonradiological health impacts, including noise, etiological agents, and occupational risks, are projected to remain minimal. Therefore, the NRC staff expects that climate change would not alter conclusions made in this EA. [Emphases added.]

[is the plan to make a plan, or the vague promise to make a plan, a good enough “hard look” under NEPA? Or hardly a look — punting, kicking the can down the road, deferring to the future? This seems like a form of segmentation — we’ll cross that bridge when we come to it, so to speak. But talk is cheap. These risks and impacts are foreseeable now. NRC and DOE deferral till a later date may be convenient for them and Holtec, but the inconvenient truth of climate change is already staring us in the face. The decision to restart PNP, with massive public bailouts by DOE, USDA, and the State of MI and MPSC, and rubberstamped approvals by NRC, are based on wishful thinking, and willful blindness toward such risks, impacts, and effects as will ever more likely be caused by worsening climate change and extreme weather events. This is hardly a look, not a hard look, thus violating NEPA.]

Climatological changes are not expected to impact radiological exposure levels or doses for humans or non-human biota at Palisades. Ongoing compliance with radiological regulations will ensure the safety of workers, the public, and the environment through established monitoring protocols and exposure limits. Consequently, the radiation health impacts outlined in this environmental assessment are anticipated to remain unchanged. Therefore, the NRC staff expects that climate change would not alter conclusions made in this EA.

[extreme weather due to climate chaos causing a meltdown would contradict this. So too accelerated flows of radioactive and toxic chemical contamination into the Lake, or aquifers, due to rain bombs, flooding, forest fires, etc., made more frequent and worse by climate change]

Projected climatological changes are not anticipated to affect nonradiological health, nonradiological waste, transportation of radioactive materials, or the likelihood of accidents at Palisades. Noise, etiological agents, and occupational injury risks will continue to be regulated to ensure the protection of human health, while compliance with applicable Federal, State, and local requirements will govern nonradioactive and mixed waste management. The transportation of radioactive materials will remain mitigated through adherence to U.S. Department of Transportation regulations. Therefore, the NRC staff expects that climate change would not alter conclusions made in this EA. ***[emphases added]***

[extreme weather could well increase disaster risk, per above.]

So too the WCS LLRW dump leaking radioactivity into the Ogallala Aquifer, stemming from PNP origin radioactive wastes. HLRWs too for that matter, at ISP and/or Holtec’s CISF(s), storing PNP HLRWs de facto permanently.

HLRW storage at PNP itself could see increased catastrophic risks, as due to extreme weather.]

Furthermore, Palisades' engineered safety features reduce the likelihood and mitigate the consequences of hypothetical accidents, as required by NRC safety regulations. As stated in the 2024 LR GEIS (2024 LR GEIS – ref):

Adaptation of nuclear power plants to climate change is addressed through the NRC's existing regulations. NRC regulations require that plant structures, systems, and components important to safety be designed to withstand the effects of natural phenomena, such as flooding, without loss of capability to perform safety functions. Furthermore, nuclear power plants are required to operate within technical specifications in accordance with their NRC-issued operating license, which includes specifications for coping with natural phenomena hazards. Any change in technical specifications would require the NRC to conduct a review before allowing licensees to make operational changes because of changing environmental conditions.

Additionally, the NRC continually evaluates nuclear power plant operating conditions and physical infrastructure through its reactor oversight program to ensure ongoing safe operations... If climate change happens more quickly or changes more substantially than what is currently forecasted, the NRC will evaluate the new information to determine whether any safety-related changes are needed at existing nuclear power plants.

[NRC likes to toot its own horn. But GAO has called out NRC's failures re: climate. A Yale report says the same thing — NRC is failing on taking the risks to safety, environment, and health seriously, vis-a-vis climate change induced extreme weather events very likely to come, and grow worse over time.]

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F.4 Greenhouse Gases

[See Dr. Jacobson's expert declarations — incorporated by reference as if fully written herein, above.]

As described in the 2024 LR GEIS, gases found in the Earth's atmosphere that trap heat and play a role in the Earth's climate are collectively termed greenhouse gases (GHGs). These GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor (H₂O), and fluorinated gases, such as hydrofluorocarbons (HCFs), perfluorocarbons, and sulfur hexafluoride. Operations at nuclear power plants release GHGs from stationary combustion sources (e.g., diesel generators, pumps, diesel engines, boilers), refrigeration systems, electrical transmission and distribution systems, and mobile sources (worker vehicles and delivery vehicles). However, the GHG emissions from nuclear power plants are typically very minor because such plants do not normally combust fossil fuels to generate electricity.

[and yet, GHG emissions associated with nuclear power are quite significant. U fuel chain. Forever waste management. Radioactive Carbon-14 generated by reactors, one of the most biologically hazardous of all artificial radioactive isotopes with a 5,500 year half-life, which means 55,000 to 110,000 years of hazardous persistence.]

What about the impacts of CFC-114 generated at Paducah and Portsmouth U enrichment facilities, two of the largest industrial sources in the world. An ozone layer destroyer. A very potent GHG. Connected to nuclear power via U enrichment for nuclear fuel, including some of that used at PNP over the decades.

Also, 4,000 MW-e of dirty old coal, every kilowatt-hour going into U enrichment for several decades on end, at Paducah and Portsmouth — another significant contribution to GHG build up in the atmosphere, connected to nuclear power, including PNP. What about these cumulative impacts and effects? Nuclear power is not carbon-free.]

During the resumption of operations, CO₂, and a small quantity of methane and N₂O will be emitted from natural gas boilers and diesel equipment as discussed for criteria pollutants. The applicant calculated these emissions for operations using standard emission factors like other pollutants (HDI 2024-TN10670: RAI-MET-6). The GHG emissions for workforce traffic during 40 years of operations have been provided for a 1,000 MW reactor in COL/ESP-ISG-026, Appendix A (NRC 2014-TN3768). ***These estimates were scaled down for 7 years of operation and 800 MWe power output. Similarly, these emissions were scaled down for the projected 18-month preparations duration. [emphasis added]***

[Compare Dr. Jacobson's opportunity costs analysis — also, it's not 2025 to 2031; it's clearly planned to be 2025 to 2051, and perhaps even longer if and when they go for a 100-year license; they also neglect the SMR new builds, yet again. The zombie reactor restart could also take significantly longer than 18 months. In fact, it already has. PNP shut down for good on May 20, 2022, nearly 3 years ago already, and still counting. The steam generator tube degradation risk alone demands steam generator replacement, not BAND-AID fixes. The 20-years overdue steam generators' replacement is now even more alarmingly needed than ever, and would take a couple years or more to do. To the best of our knowledge, that process has not even begun, such as the decision to replace the steam generators, and the \$510 million order to do so — Holtec's estimated price tag in its 7/5/22 bailout application to DOE.]

The NRC staff estimated the life-cycle greenhouse gas (GHG) emissions of various activities associated with the preparations for resumption of power operations, resumption of power operations, and return to decommissioning for Palisades. The GHG emission estimates include direct emissions from the nuclear facility and indirect emissions from workforce and fuel transportation, decommissioning, and the uranium fuel cycle. The NRC staff estimated these emissions for the Palisades site using best available data from various sources.

[Has NRC ignored Dr. Jacobson's declarations, even though he is our environmental coalition's expert in this very ASLB proceeding? How does NRC's analyses compare to Jacobson's which

they seem to have ignored? Dr. Jacobson's declarations have been incorporated by reference as if fully rewritten herein, so NRC should not ignore them any longer. Neither should DOE. To analyze Dr. Jacobson's declarations sufficiently, an EIS/PEIS is required.]

Section 3.12.1 of the 2024 LR GEIS discusses other sources of GHG emissions from nuclear power plants, including sulfur hexafluoride used in electric power transmission and distribution applications (substations, circuit breakers, and other switchgear). Fluorinated gas emissions from refrigerant sources and from electrical transmission and distribution systems can result from leakage, servicing, repair, or disposal of sources. While the NRC staff does not have specific information for Palisades, NRC staff conservatively estimates that these gases are present in the transmission systems at Palisades as these gases are commonly used in transmission systems. However, even if present, they would not be significant contributors to total GHGs for Palisades. This is based on the NRC's analysis presented in Section 4.12.1 of the LR GEIS that shows that the quantified GHG emissions from nuclear power plant operations, when compared to annual State-level GHG emissions, or annual county-level GHG emissions, ***or replacement power alternatives, are orders of magnitude lower across all nuclear power plant sites presented in Table 3.12-2.*** Additionally, the 2024 LR GEIS found that the environmental impacts would be the same or similar at all nuclear plant sites, and that the ***[emphasis added]***

[False. See Dr. Jacobson's declarations.]

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impacts of GHG emissions on climate change from continued operations and refurbishment during the initial LR and SLR terms and any refurbishment activities would be SMALL.

The indirect GHG emissions from uranium fuel cycle is also provided in COL/ESP-ISG-026 Appendix A that accounts for fossil fuel combustion for centrifuge enrichment and process heat. These emissions were also scaled down for 7 years of operations and 800 MWe for the Palisades unit.

[Not 2031, but 2051, and likely beyond, as with a 100-year license extension application. This is foreseeable under NEPA in terms of Cumulative Effects. What about SMRs, that would operate from 40 to 100 years into the future? What about cumulative impact of Portsmouth and Paducah's past effects? What about GHG emissions associated with imports of HEU from Russia, as well as U imports from Canada, Australia, etc.?.]

Decommissioning activities include SAFSTOR workforce for a period of 40 years and demolition activities for 10 years that include emissions from fossil fuel fired equipment and workforce. Staff included an estimate of Greenhouse Gas Emissions from decommissioning because the potential approval of the Federal actions would delay the impacts of decommissioning by up to 7 years. The decommissioning emissions for 1,000 MW power plant in COL/ESP-ISG-026 was scaled to the 800 MWe capacity of Palisades.

[Also misleading. We cite a 2/24/25 email message from Kevin Kamps of Beyond Nuclear, written to a reporter, pasted in immediately below:

Thanks for sharing that MLive video.

{Here it is, incorporated by reference as if fully rewritten herein:

<https://holtecinternational.com/news/videos/the-future-of-palisades-power-plant/>}

Note the date on it:

*Palisades Nuclear Training Manager, Walter Nelson, and Holtec Government Affairs and Communications Senior Manager, Pat O'Brien, talk about the decommissioning process of the Palisades Power Plant in Covert, Michigan on Tuesday, **May 24, 2022.***

Entergy, the previous owner, had just closed Palisades for good on May 20, 2022. Holtec would not take ownership of the site -- again, supposedly still for decommissioning purposes only -- till June 28, 2022.

However, Holtec had published its Palisades PSDAR (Post-Shutdown Decommissioning Activities Report) on Dec. 23, 2020 -- so the Holtec spokesman, Pat O'Brien, and even the Entergy training manager, Walter Nelson, were sticking to that "script". However, Holtec effectively hit the pause button on decommissioning by July 5, 2022, at the latest, when it applied in secret to DOE for many billions of dollars in bailouts to instead restart the more than half-century old reactor.

On Sept. 9, 2022, Holtec and Gov. Whitmer publicly announced the restart scheme, and that Holtec would be the company carrying it out.

On June 10, 2022, Entergy -- still owning Palisades -- did transfer all the spent (irradiated, highly radioactive) nuclear fuel from the reactor core, to the indoor wet storage pool.

On June 13, 2022, Entergy submitted certifications to the NRC documenting permanent closure of the reactor (permanent cessation of reactor operations), and permanent transfer of spent nuclear fuel from the core to the pool.

But transfer of spent nuclear fuel from the indoor wet storage pool, to dry cask storage, has not taken place. The pool is packed to the gills. Around two-thirds of the irradiated nuclear fuel ever generated at Palisades since 1971 is still stored in the indoor wet storage pool; the other one-third has been transferred to outdoor dry cask storage. But Holtec has done no such transfers yet, on its watch, to the best of my knowledge. The dozens of dry casks at Palisades were loaded by previous owners, Consumers Power (Consumers Energy), beginning in 1993, and by Entergy, after it took over in 2007.

The pool is much more risky than the dry casks. But the dry casks are not risk-free -- especially considering the whistleblower revelations I've previously sent you, about the quality assurance violations galore associated with Holtec's storage/transport containers. One of those whistleblowers, NRC dry cask storage inspector Dr. Ross Landsman, has also warned about earthquake safety regulations being violated by Palisades' two dry cask storage pads, risking catastrophe:

<http://archives.nirs.us/reactorwatch/licensing/palisades.htm>

(See the February 17, 1994 section at the bottom; also see Dr. Landsman's Feb. 2, 2007 update, towards the top. All the posts linked at the above link are mostly about our 2005-2007 resistance to Palisades' 2011-2031 license extension, although there are other valuable posts there, as well.)

Also, clearly, there has been very little to no dismantlement of facilities, nor return of the site to greenfield status, as spoken about in the video you shared with me. Beginning at least by July 5, 2022, Holtec no longer had any intention of decommissioning Palisades, at least not any decade soon, but rather of restarting it.

Gov. Whitmer had floated just such a trial balloon -- not decommissioning, but rather operating for many decades into the future -- on April 20, 2022.

But in the May 24, 2022 video you've shared, the spokesmen were sticking with Holtec's decommissioning ruse, con job, bait and switch trick, and fraud.

It's interesting that Pat O'Brien on May 24, 2022 said nothing about "Small Modular Reactor" new builds, nor the reactor restart scheme -- his boss, Holtec founder and CEO Kirshna Singh, and Gov. Whitmer, respectively, had brought up both schemes, more than a month earlier. But Pat O'Brien was sticking with the decommissioning con job script.

On March 20, 2023, Holtec V.P. Trice revealed, at a meeting with NRC re: the "regulatory pathway to restart," that the only decommissioning work that Holtec had performed at Palisades was minor modifications of the mechanical draft cooling towers, all easily reversible. He also blurted out that the salaries for the 220 workers left onsite were being paid by the ratepayer-funded Decommissioning Trust Fund. A short time after that revelation, we officially called for investigations of illegal misuse of the DTF, for the restart scheme. NRC has strung us along on our allegations for nearly two years, but has admitted certain levels of misuse of DTFs, not only at Palisades, but across Holtec's decommissioning fleet. But where NRC admitted tens of thousands of dollars of misuse, many months ago, we have alleged misuse of tens to hundreds of millions of dollars.

(Just days ago, we got hold of a recent NRC report, documenting yet another \$50 million of DTF expenditures at Palisades on non-decommissioning expenses. Needless to say, every dollar of the DTF not spent on decommissioning, but instead spent on something else, will mean one less dollar for dismantlement of facilities, low-level radioactive waste management, and radioactive

contamination clean up. MI's AG, Dana Nessel, has already officially alleged that Palisades' DTF was \$200 million short of Holtec's own PSDAR plans, back in 2020 to 2021. Since then, Holtec has drained hundreds of millions of dollars from the Palisades DTF, while doing very little to no decommissioning work. Either decommissioning will never take place, for lack of funds, or else the public will be looked to again yet another time, to replenish the DTF. Either way, it's a major rip off, to put it politely. We're talking many hundreds of millions of dollars, with the fate of the Great Lakes at stake, given the risk of that onsite contamination hemorrhaging into groundwater, Lake Michigan -- both drinking water supplies -- the food chain, and the neighboring countryside (a state park immediately to the north, a 120-year old resort community of 205 cottages immediately south) over time, if never cleaned up, or inadequately cleaned up.)

Since Holtec's public announcement of Sept. 9, 2022, of the restart scheme (as well as the SMR new build scheme), this has been the talk of the town. Decommissioning has been deferred for many decades into the future.

Holtec plans to apply for an 80-year license, not to expire till 2051, for the restarted zombie reactor. So its old PSDAR might get dusted off at that time?

However, Holtec has loudly proclaimed it will build two SMR-300s at Palisades, by 2030. They would likely operate at least 40 years, if not 60, if not 80, if not longer. $2030 + 80 \text{ years} = 2110$. Decommissioning even the old reactor probably could not begin till the SMRs close, such as in 2110 -- the site is only 432 acres. It would not be safe to dismantle the old reactor facilities, while the SMRs are operating.

Three Mile Island in Pennsylvania shows this very dynamic. The Unit 2 reactor, which had the 50% reactor core meltdown on 3/28/1979, has remained un-decommissioned, because Unit 1 was still operating till 2019. However, Constellation Energy has now proposed restarting Unit 1, and operating it for decades to come. This means the Unit 2 decommissioning would likely have to continue to wait, to even begin, till Unit 1 shuts down, decades from now.

At Three Mile Island, Constellation is following the precedent being set by Holtec at Palisades. NextEra/Florida Power and Light is doing the same at the Duane Arnold reactor in Iowa, which closed after a close call with catastrophe in 2019. Diablo Canyon Units 1 & 2 in CA are zombie reactors of another kind -- they were supposed to shut down in 2024 and 2025, but now that company-initiated shutdown plan has been revised to decades of continued operations. And in South Carolina, the half-built or less Summer Unit 2 & 3 reactors have now been proposed to go forward again, after their cancellation in 2017, due to the bankruptcy of Westinghouse due to the project, at a loss of \$9 to 11 billion to South Carolina ratepayers, many of whom are African American and/or low income.

So the 2020 PSDAR "script" that the two speakers in the video you shared were sticking to, would not actually be carried out till 2110, at the earliest, given Holtec's current plans of zombie reactor restart, and SMR new builds.

---Kevin Kamps, *Beyond Nuclear*]

Table F-2 below provides the emissions estimates for each of these activities. The estimated emissions of the proposed actions are 1,444,739 MT CO₂(eq)—this includes emissions from preparation activities and resumption of operations. The total life-cycle emissions (which also include decommissioning) were estimated to be about 1,474,000 MT CO₂(eq).

[well that's a LOT!]

Table F-2 Nuclear Power Plant Life-Cycle Greenhouse Gas Emissions Estimates for Preparation Activities at Palisades Nuclear Plant (18 months), Operations (7 years) and Decommissioning

[compare to Jacobson]

F.5 Conclusions

The NRC staff concludes that the potential effects of climate change would not alter the impact determinations in this EA for the preparation for the resumption of power operations and for the resumption of power operations at Palisades.

[we contest this false conclusion]

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APPENDIX G PROJECTS CONSIDERED IN CUMULATIVE EFFECTS

However, because of the uniqueness of each environmental resource area evaluated and its associated geographic area of analysis, Section 3 does not consider or explicitly evaluate every project and action listed in Table G-1.

[why not? not a hard look, rather hardly a look]

Table G-1 Projects and Actions U.S. Nuclear Regulatory Commission Staff Considered for Cumulative Effects Impact Analysis for the Resumption of Power Operations Activities at Palisades Nuclear Power

[the word Plant was radiogenically apoptosis'd from the very end]

Energy Facility –
Donald C Cook
Nuclear Power Plant

2,161 MWe

pressurized water
reactor

28 mi N

Operational since
1975

[S radiogenically mutated into N.

Cook is south of PNP, not north of it. NRC really should keep better track of where gigantic NPPs like Cook are located]

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Energy Facility –
Zeeland Generating
Station

Power station with
two natural gas
combined cycle
plants and two
natural gas simple
cycle units

40 mi N Unknown Consumers Energy.

Natural Gas
Generation.

[https://www.consumer
senergy.com/about-
us/electric-
generation/natural-gas](https://www.consumer
senergy.com/about-
us/electric-
generation/natural-gas)

[why is the status unknown. Is nrc that lazy? Nobody Really Cares about cumulative impacts, actually. NEPA violation, of letter and spirit of the law.]

Transmission
Infrastructure –
New Buffalo

Rebuild ~20 mis of
power lines

~40 mi

Construction
expected early
2026 through Fall
2027

AEP Transmission.
New Buffalo –
Bridgman

Transmission Line
Rebuild Project.
<https://aeptransmission.com/michigan/NewBuffalo-Bridgman/>

[radiogenic mutation of the spelling of the abbreviation mi to mis

also, why is the direction from Palisades not included?]

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Transmission
Infrastructure –

Niles
Improvements
including upgrades
to substations and
retiring, upgrading
and building new
transmission lines

~35 mi SE

Constructed
expected from
2024 through
2026

AEP Transmission.
Niles Area
Transmission
Improvements Project.

<https://aeptransmission.com/michigan/NilesArea/>

[construction, not constructed — such sloppiness indicates/reflects a half-hearted effort on the EA altogether]

Transmission
Infrastructure –
South Cass

Building new
transmission lines
and expanding
Substation

~40 mi

Construction
expected early
2025 through
early 2026

AEP Transmission.
South Cass County
Transmission Line
Project.

<https://aeptransmission.com/michigan/SouthCassCounty/>

[why is direction from PNP not included?]

Transmission
Infrastructure –
South Bend

Rebuilding ~12 mi
of transmission
lines and
upgrading
substation

~40 mi

Construction
expected early
2025 through
early 2026

AEP Transmission.
South Bend – Niles
Transmission Line
Project.
<https://aeptransmission.com/indiana/SouthBend-Niles/>

[why is direction from PNP not indicated?]

Transmission
Infrastructure –

New substations
(Northridge, Jaguar,
Meyer)

Multiple
substations
construction

within 50 mi

- ITC. ITC Michigan.
<https://www.itc-holdings.com/project-category/michigan/>

[why is the direction from PNP not included?]

Brownfield Project –

Redevelopment
Development of a
brownfield from
coal, lumber, and
chemical storage
to construction of

two residential
buildings, a
community center,
and community
garden

40 mi E

Ongoing Michigan EGLE.
RenewMI Project
Viewer.

[https://experience.arcgis.com/experience/a3db431c6b154b87a481e1122f726101/page/Project-](https://experience.arcgis.com/experience/a3db431c6b154b87a481e1122f726101/page/Project-Viewer/?utm_campaign=splash&utm_content=RenewMI-Project-Viewer-App&utm_medium=web&utm_source=gis-app)

[Viewer/?utm_campaign=splash&utm_content=RenewMI-Project-Viewer-App&utm_medium=web&utm_source=gis-app](https://experience.arcgis.com/experience/a3db431c6b154b87a481e1122f726101/page/Project-Viewer/?utm_campaign=splash&utm_content=RenewMI-Project-Viewer-App&utm_medium=web&utm_source=gis-app)

Brownfield Project –
Redevelopment

8 ac site
contaminated with
petroleum and
metals to be
converted to a
mixed use
residential/work-
live development

40 mi E

Ongoing Michigan EGLE.
RenewMI Project
Viewer.

[https://experience.arcgis.com/experience/a3db431c6b154b87a481e1122f726101/page/Project-](https://experience.arcgis.com/experience/a3db431c6b154b87a481e1122f726101/page/Project-Viewer/?utm_campaign=splash&utm_content=RenewMI-Project-Viewer-App&utm_medium=web&utm_source=gis-app)

Viewer/?utm_campaign=splash&utm_content=RenewMI-Project-Viewer-App&utm_medium=web&utm_source=gis-app

[these sound like Kzoo area projects; dicey, living and even gardening on toxic sites!]

Brownfield Project –
Redevelopment
Cleanup of a
0.89 ac site
contaminated with
petroleum related
compounds for
future
development
40 mi E Ongoing Michigan EGLE.
RenewMI Project
Viewer.
https://experience.arcgis.com/experience/a3db431c6b154b87a481e1122f726101/page/Project-Viewer/?utm_campaign=splash&utm_content=RenewMI-Project-Viewer-App&utm_medium=web&utm_source=gis-app

[this one too, per just above]

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Manufacturing & Air
Emission Sources –
Pharmacia & Upjohn
Company, LLC
Chemicals

50 mi E,
Kalamazoo,
Michigan

Operational

U.S. Environmental
Protection Agency.
Greenhouse Gas
Reporting Program
[https://www.epa.gov/g
hgreporting/data-sets](https://www.epa.gov/g
hgreporting/data-sets)

[very old names for it. It is now Pfizer. Has been for a long time.]

[sand dune mining could be included above — more negative impacts on fragile sand dune ecosystems, in addition to those at PNP, and Cook NPP]

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Landfill –
Elkhart County Solid
Waste

Solid waste landfill 50 mi *NE*, Elkhart,
Indiana

Operational Elkhart County
Landfill. Landfill Drop
Off Information.
[https://www.elkhartcou
ntylandfill.com/landfill](https://www.elkhartcou
ntylandfill.com/landfill)

[radiogenic mutation of directions — Elkhart is SE of PNP, not NE]

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Transportation –
Kalamazoo/Battle
Creek International
Airport
Airport 40 mi, E,
Kalamazoo,

Michigan
Operational Kalamazoo/Battle
Creek International
Airport.
<https://flyazo.com/>

[they say airport is 40 mi E. But they say Pfizer is 50 mi E. Airport and Pfizer are not 10 miles apart. They are single digit miles at most. About 1 mi apart I'd guess. So they are an order of magnitude off on this. Not good, with 50-mile radius EPZ in play, for example. Such carelessness could cost lives in an emergency.]

[why isn't the airport just east of PNP, but mere miles if that, not listed here? Is PNP security as ignorant of that airport's existence as this table would seem to indicate?]

Transportation –
Rebuilding U.S.-131
from 76th Street to
100th St in Byron
Township

Rebuild freeway

20 mi, NE, Grand
Rapids, Michigan

Scheduled May
2024–November
2024

Michigan Department
of Transportation –
U.S.-131 rebuilding-
Kent County.
<https://www.michigan.gov/mdot/projects-studies/us-131-kent-county>

[again, GR is 50 miles from PNP, not 20 mi]

Parks/Recreation –
Van Buren State
Park

Day use and
camping area with
miles of trails

<5 mi, Van Buren
County, Michigan

Operational Pure Michigan. Van
Buren State Park.
<https://www.michigan.org/property/van-buren-state-park>

[5 mi? It is immediately N of PNP. The distance from PNP is 0 miles, technically speaking. The campground is merely hundreds of yards, if that, from PNP dry cask storage pad. Getting this distance wrong is outrageous, especially in the context of emergency planning, but also health and env'l impacts from so-called "normal" or "routine" operations. How could NRC get this wrong? Not know this?]

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Parks/Recreation –
North Point
Conservation Area

17 *area*
conservation area

<5 mi, Van Buren
County, Michigan

Operational Van Buren County.

North Point
Conservation area.
<https://www.vanburencountymi.gov/438/North-Point-Conservation-Area>

[acre, not area]

Parks/Recreation –
Black River Preserve

120 ac preserve

6 mi, Van Buren
County, Michigan

Operational

Southwest Michigan
Land Conservancy.
Black River Preserve.
<https://swmlc.org/project/black-river-preserve/>

[why is direction from PNP not included?]

[all of these listed parks and rec areas are at risk of ruination from a meltdown at PNP]

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Parks/Recreation –
Warren Dunes State
Park

1,500 ac park

32 mi S, Berrien
County, Michigan

Operational

Department of Natural
Resources Michigan.
Warren Dunes State
Park.
[https://www2.dnr.state
.mi.us/parksandtrails/
Details.aspx?id=504&t
ype=SPRK](https://www2.dnr.state.mi.us/parksandtrails/Details.aspx?id=504&type=SPRK)

[if Cook NPP is 30 miles S, how can Warren Dunes be 32 mi S. Warren Dunes is several miles NORTH of Cook; distance is wrong]

[why isn't Enbridge Oil pipeline included in this table? esp. considering impacts from July 2010 worst inland oil spill in US history into the Kzoo River]

P.193/242 (page H-1)

APPENDIX H
DISCUSSION OF CANCER RISKS AT AND AROUND PALISADES
NUCLEAR PLANT

[incorporate by reference Mangano studies]

[also cite CRAC-II latent cancer fatality figure]

[cite NAS LNT]

The NRC's mission
is to protect the public health and safety and the environment from the effects of radiation from
nuclear reactors, materials, and waste facilities.

[well, NRC is failing miserably at this. Compare Sarah Sauer's experience at Dresden/
Braidwood]

The NRC's regulations in Title 10 Code of
Federal Regulations (10 CFR) Part 20 (TN283) set forth regulatory standards for radiological
protection to protect workers and the public from the harmful health effects (i.e., cancer and
other biological impacts) of radiation on humans.

[compare NRC's allowable worker doses to int'l counterparts' — 5 R/yr v 2 R/yr]

The models recognized by the NRC are for use by
nuclear power reactors to calculate dose incorporate conservative assumptions and account for
differences in gender and age to ensure that workers and members of the public are adequately
protected from radiation.

[this sentence needs some commas]

This theory is accepted by
the NRC as a conservative model for estimating health risks from radiation exposure,
recognizing that the model probably overestimates those risks.

[there are those who think the LNT theory understates cancer risks — such as supra-linear at low
doses; the Petkau Effect; etc. Also, models understating doses due to bad assumptions,
mismeasurements, etc.]

Additionally, 10 CFR 20.1301(e) requires each nuclear power reactor to comply with applicable environmental radiation standards in 40 CFR Part 190 (40 CFR Part 190-TN739), such as the total annual whole body dose to a member of the public outside the facility does not exceed *to* 25 mrem (0.25 mSv).

[delete]

The amount of radioactive material released from nuclear power facilities is well-measured, well-monitored, and known to be very small.

[uh, not BRP — more than 3 million Curies, with numerous years missing from the accounting]

The doses of radiation that are received by members of the public as a result of exposure to nuclear power facilities are so low (i.e., less than a few millirem) that resulting cancers attributed to the radiation have not been observed and would not be expected.

[uh, not at Chornobyl; not at Fukushima; so the radioactivity disappears into nothingness? What about bioaccumulation?]

[this section is a whitewash, and a greenwash]

[incorporate by reference:

Fairlie and Folkers; Bertell; Gofman; Makhiani; etc.]

In addition to NRC's requirements to monitor radioactive effluents (*routine and inadvertent*) discharged into the environment, the NRC requires each nuclear power plant to maintain a monitoring and surveillance program under the regulations at 10 CFR Part 50, Appendix I (TN249), such as with a radiological environmental monitoring program (REMP).

[incorporate by reference Kay Drey's pamphlet]

P.194/242 (page H-2)

This implementation also measures radioactivity from other nuclear facilities that may be in the area (i.e., other nuclear power plants, hospitals using radioactive material, research facilities, or any other facility licensed to use radioactive material).

[cite radiological contamination in the stolen Jean Klock Park — part of the reason boardwalks had to be incorporated through “nature” trails — radioactive ones, that is]

To obtain information on radioactivity around the plant, samples of environmental media (e.g., surface water, groundwater, drinking water, air,

milk, locally grown crops, locally produced food products, river, ocean, or lake sediment, and fish and other aquatic biota) are collected from areas surrounding the plant for analysis to measure the amount of radioactivity, if any, in the samples.

[cite Mangano's 2013 citation of EPA tritium figure from mid-1990s]

As part of its environmental review, the NRC staff reviews REMP reports to look for adverse data or evidence of a buildup of radioactivity in the environment.

[as Barbara pellegrini has pointed out, above, radioactive discharges into Lake MI from PNP are artificial. They do not dilute. They build up.]

The State of Michigan conducts an independent REMP program through the Michigan Department of Environment, Great Lakes, and Energy (MEGLE 2016-TN10744). The Michigan Radiation Environmental Monitoring Program monitors ambient radiation levels, and collects air, water, precipitation, and milk samples from areas surrounding all of the nuclear power plants in Michigan, including Palisades.

[cites figures for dairies from Corey's milk jugs in 1999]

This program has been operated by the State since 1958.

[b/c of Fermi 1? Phoenix/Ford research reactor at U of M?]

The collected and analyzed data is published periodically and is currently reported through 2016.

[that's nearly a decade ago now!]

P.194-195/242 (page H-2 to H-3)

Total cancer rates and thyroid cancer rates were reviewed on these levels from 2006 (the year of publication of the license renewal) to the most recent data available. These statistics are shown in Table H-1 H-3 below and indicate that occurrences of cancer and thyroid cancer in the area surrounding Palisades do not vary from rates regionally.

[shouldn't NRC have gone back way earlier than 2006? If by 2006 — 35 years after Palisades fired up, and 31 years after Cook 1 & 2 fired up, to name but three reactors on Lake MI — cancer rates had already increased significantly, this would skew the analysis to make higher cancer rates, caused by nuclear power, look “normal” or “to be expected,” as radiogenic cancer continued at the same high rates from 2006 to 2025. This seems methodologically flawed.

I wonder if the true extent of thyroid cancer and cancer in general at PPCC for one is hidden or masked by the cancers being recorded in the home county/state where the sufferers live for the rest of the year, while only living at PPCC (and contracting cancer due to radiation or toxic chemical releases from PNP) during the summer months?

Compare how childhood cancers in Morris, IL were hidden, on purpose, by the local pediatrician who also was a major real estate owner there — he didn't want his real estate values to decrease, so he intentionally concealed childhood cancers from the records. Also, the childhood cancer specialists were in Chicago, so sometimes the cancers got recorded in Chicago, not in Morris.

The same kinds of shenanigans were played in the USSR after Chornobyl, and in Japan after Fukushima.]

Table H-1 Age-Adjusted Incidence Rate of Thyroid Cancer Per 100,000 Individuals in a Population in Select Michigan Counties in Over 5 Years (CDC 2024-TN10845)

[Allegan County's thyroid cancer rate seems to have more than doubled from 2001 to 2020 — what explains that?

In Berrien County, it went up by 50% between 2001 and 2015 — what explains that?

Why is there no data in Cass County from 2001 to 2010, but then high rates from 2010 to 2020?

What explains the high rate in Kalamazoo County from 2006 to 2010?

For Van Buren County, again, are thyroid cancers in PPCC not even being counted as VB Co. thyroid cancer cases, because the sufferers' thyroid cancer are being recorded back in their home county, elsewhere in MI, or even in another state entirely, while the sufferers only spend the summer in PPCC?]

Although a number of studies of cancer incidence in the vicinity of nuclear power facilities have been conducted, there are no studies to date that definitively demonstrate a correlation between radiation dose from nuclear power facilities and cancer incidence in the general public.

[Oh really? How about the increased childhood leukemia in Germany? The still births and sterility at La Hague in France, and Sellafield in the UK? And how about around Chornobyl and Fukushima? How about around TMI per Steve Wing? This is a false and misleading statement by NRC.]

[Mention the canceled nuclear power-cancer causation study NRC cancelled, and the reasons why.]

The following is a listing of radiation health studies that the NRC recognizes:

- In 1990, at the request of Congress, the National Cancer Institute conducted a study of cancer mortality rates around 52 nuclear power plants and 10 other nuclear facilities. The study covered the period from 1950 to 1984 and evaluated the change in mortality rates

before and during facility operations. The study concluded there was no evidence that nuclear facilities may be linked causally with excess deaths from leukemia or from other cancers in populations living nearby (NCI 2011-TN10889).

[methodologically flawed, according to Cindy Sauer. Also cite Joe Sauer's study]

In June 2000, investigators from the University of Pittsburgh found no link between radiation released during the 1979 accident at the Three Mile Island Nuclear Generating Station and cancer deaths among nearby residents. Their study followed 32,000 people who lived within 5 mi (8 km) of the plant at the time of the accident (Talbot et al. 2000-TN10890).

[rebut with Steve Wing's study]

P.197/242 (page H-5)

The State of Michigan Department of Health and Human Services, Department of Environmental Health conducted a review of the thyroid cancer statistics for the area of Covert Township in Michigan (MDHHS 2024-TN10866). The State identified six instances of thyroid cancer in Covert Township from 1985 to 2021. The small number of recorded cases in a population of 2,510 was too low to conduct viable statistical analysis with other comparable locations. No temporal patterns were identified with regards to thyroid cancer for the location during the review. The data was obtained from the Michigan Cancer Surveillance Program. ***It is important to note that part-time residents with a separate primary residence or individuals that were diagnosed after moving away from the county would not be identified as individuals diagnosed in Covert Township.***

[well that's a huge methodological falw then, isn't it?]

[thyroid pathology after Chornobyl — an epidemic — “Belarus necklace” — cite Adi Roche]

[Gerald and Martha Drake — spina bifida near Big Rock Point — 3 M Curies+ of releases — compared to Sellafield — compare I-131 releases at the two — mention that BNFL was contracted to do BRP decommissioning, and reported it was the most radioactively contaminated decommissioning job in its history, which is really saying something, given the history at Sellafield]

The average occupational radiation exposure TEDE dose for the operational years 2006 to 2021 ranged from 0.09 rem to 0.39 rem (NRC 2024-TN9915). These dose results confirm that Palisades was operating in compliance with 10 CFR Part 50 (TN249), Appendix I, 10 CFR Part 20 (TN283), and 40 CFR Part 190 (TN739) for members of the public and occupational dose limits.

[compare to the 2.8 R average dose, on a one month long job, gotten by close to 200 workers at PNP, including some women of child bearing age — CRDM seal leak repair job, in 2014]

[so the studies above are mostly to entirely the ones NRC likes, and which affirm their predetermined and desired result; the only one that seemed to indicate a problem was this one:]

Nuclear workers provide valuable information on the effects of ionizing radiation in contemporary exposure scenarios relevant to workers and the public. A 2023 article presented in the International Journal of Epidemiology titled, “Ionizing Radiation and Solid Cancer Mortality Among U.S. Nuclear Facility Workers,” included an analysis of greater than 100,000 nuclear workers in the United States, exposed to an average 2,650 mrem (26.5 mSv) of external penetrating ionizing radiation. This study notes that higher rates of solid cancers including lung cancers were observed for workers of five nuclear facilities between the years of 1944 to 2016. *The analysis given in the article bolsters the body of evidence suggesting there are radiogenic risks associated with several types of solid cancers (Kelly-Reif et al. 2023-TN10917).*

[why did NRC ignore all those studies I’ve listed, which is just a small number of examples that could be given? What about the Downs syndrome study in MA near Yankee Rowe? What about the many anti-nuclear groups that grew out of childhood cancer support groups, from CORE in the UK near Sellafield, to Parents Against Santa Susana Field Lab in CA?]

ACS (American Cancer Society). 2001. Cancer Facts & Figures-1998. Atlanta, Georgia. ADAMS Accession No. ML071640135. TN10891.

[that’s nearly 30 years old!]

P.198/242 (page H-6)

MDHHS (Michigan Department of Health and Human Services). 2024. Letter from K. Vang, Unit Manager, Health Statistics Surveillance Unit, Environmental Health Surveillance Section, Division of Environmental Health, to D. Persky, Health Officer, Van Buren/Cass District Health Department, dated November 15, 2024, regarding “Findings of investigation of cancer incidence among residents of Covert Township, Michigan.” Lansing, Michigan. ADAMS Accession No. ML25006A210. TN10866.

[MDHHS as rear guard for industry; compare American Thyroid Assn. compare Peter Crane.]

MEGLE (Michigan State Department of Environment, Great Lakes, and Energy). 2016. “Radiological Monitoring & Reporting.” Lansing, Michigan. Accessed September 18, 2024, at <https://www.michigan.gov/egle/about/organization/materials-management/radiological/monitoring#:~:text=The%20state%20of%20Michigan%20established,environment%20are%20not%20adversely%20impacted.> TN10744

[this is nearly a decade old! What about 2016-2025?!]

P.199/242 (page H-7)

University of Kentucky. 2014. “Cancer Incidence and Mortality Inquiry System, Version 7.0, Michigan Cancer Surveillance Program.” University of Kentucky/Kentucky Cancer Registry, Lexington, Kentucky. Accessed November 18, 2024, at <https://www.cancer-rates.info/mi/TN10851>.

[even if accessed last year, the data appears to be 12 years old — need for updated data, eh?]

[UNSCEAR — cite Alfred’s critiques]

[Cite Ian Fairlie’s TORCH report in 2006, compare it to IAEA — 93,000 deaths attributable to Chernobyl, instead of just 40 — cite Yablokov, Nesterenko, and Nesterenko — 986,000 deaths, just from 1986 to 2004.]

P.201/242 (page I-1)

APPENDIX I

SUPPLEMENTAL INFORMATION PERTINENT TO SECTION 106 CONSULTATION AND THE HISTORIC AND CULTURAL RESOURCES REVIEW

I.1 National Historic Preservation Act Section 106 Consultation

The National Historic Preservation Act of 1966, as amended (NHPA) (TN4157), requires Federal agencies to consider the effects of their undertakings on historic properties and consult

with applicable Federal, State, Tribal, local groups or agencies, individuals, and organizations with demonstrated interest in the undertaking before taking the action.

[that’s us! That’s me!]

[“protection of historic properties” — PNP, as monument to man’s folly — quote Blue Oyster Cult Godzilla song]

12 federally recognized Indian Tribes.

[many more than that this go round yeah?]

35

federally recognized Indian Tribes

[yes indeed]

The NRC initiated consultation with the Advisory Council on Historic Preservation, Michigan State Historic Preservation Office (Michigan SHPO), and 35 federally recognized Indian Tribes via a letter dated July 1, 2024, with the Michigan SHPO, the ACHP and 35 federally recognized Indian Tribes. All consultation letters are presented in Appendix E to this environmental assessment (EA), with individual contacts presented in

Appendix D to this EA.

[a long and poorly written sentence]

The

NRC sent a summary of the in-person site visit and information session with all federally recognized Indian Tribes on October 9, 2024.

[many hundreds, or just the 35?]

P.202/242 (page I-2)

By emails dated September 18, 2024, and October 2, 2024 (NRC 2024-TN10879), the NRC sent Holtec's archaeological survey report (SEARCH 2024-TN10846) to federally recognized Tribes for review and comment. To date, no comments regarding the archaeological report have been received. On November 4, 2024 (NRC 2024-TN10879), Holtec sent its historic and cultural resource procedures to address inadvertent discoveries and notification protocols to federally recognized Indian Tribes. To date, no comments have been received.

[we helped win this victory. Larry guided us to.]

All consultation letters are presented in Appendix E to this environmental assessment (EA), with individual contacts presented in Appendix D to this EA.

[they may have been cited; they were not presented; we'd have to chase them down via the ML #, if ADAMS worked that day, it often doesn't]

On

November 6, 2024, Michigan SHPO determined that the containment building could not be considered separately from the remaining parts of the Palisades facility and did not rise to the level of significance required for listing in the NRHP under Criteria C for Architecture/Engineering (MI SHPO 2024-TN10844).

[ah c'mon! It IS of historic significance — as a monument to the folly of man! Quote Godzilla song; cite the English translation of the novel — incorporate by reference, as if fully written herein]

I.2 Historic Land Disturbance Photographs and Maps

In 1965, Consumers Power Company and the Detroit Edison Company completed a joint study to identify suitable locations in Michigan for a proposed nuclear power plant (AEC 1972-TN10603). Of the locations studied, Consumers Power Company selected Palisades due to its location being: (1) immediately adjacent to Lake Michigan, (2) near existing and nearby railroad facilities, and (3) close to existing transmission line infrastructure. ***Palisades was also selected because it was the location of a former sand quarry.*** In 1966, grading and vegetation clearing

activities began at Palisades

[watch out for sand quarries. Compare to NTS.]

P.203-204/242 (page I-3 to I-4)

[First two images — how heartbreakingly beautiful]

P. 205/242 (page I-5)

The Palisades Nuclear Plant Site on September 6, 1966, Showing the Early Stages of Vegetation Clearing and Grading. The Original Photograph Caption States, “burning trees.”

[yes how awful; bulldozing dunes, too]

P.206/242 (page I-6)

Figure I-4 Heavy Equipment Operating on the Beach on the Northern Portion of the Palisades Nuclear Plant Site on September 22, 1966. Photograph Looking to the Northwest. Source: HDI 2024-TN10670.

[“beach disposal” — beach despoilment — disposal like trash, trashing it. It was essentially a wilderness, but for the quarry; PNP would make look small by comparison]

Figure I-5 Heavy Equipment Grading the Beach at the Palisades Nuclear Plant Site on October 17, 1966. Photograph Looking to the North. Source: HDI 2024-TN10670

[“panoramic view” — was prettier before they bulldozed it]

P.207/242 (page I-7)

Figure I-6 A Photograph from December 1966 Looking Southwest across the Palisades Nuclear Plant Site Showing the Extent of Land Grading Activities at That Time. Note the Cleared Vegetation and Road Cut into the Sand Dune behind the Crane. Source: HDI 2024-TN10670.

[They paved paradise and put up a “parking lot” — Joni Mitchell]

P.208/242 (page I-8)

Figure I-7 A Topographic Map Highlighting the Disposal Area along the Shore of Lake Michigan for Construction of Palisades Nuclear Plant. Source: HDI 2024-TN10670.

[“disposal area” — “earth disposal area” — disposing of Mother Earth — despoiling Mother Earth — trashing the planet, to borrow Dixie Lee Ray’s slogan — she was a gung ho trasher of the planet]

P.209/242 (page I-9)

Figure I-8 A Topographic Map Highlighting the *Disposal Area along the Shore of Lake Michigan for Construction of Palisades Nuclear Plant*. Source: HDI 2024-TN10670.

[such strange language for it, but revealing]

P.210/242 (page I-10)

Figure I-9 A Photograph from April 25, 1967, Looking Northeast over Palisades Nuclear Plant Site. Note the Cleared Vegetation and Road Cut into the Sand Dune to the Right of the Circular Footprint of the Future Reactor Vessel Building and the Land Grading and Vegetation Clearing along the Beach to the South of the Site. The Original Photograph Caption States, “The lake is washing sand from the south disposal area.” Source: HDI 2024-TN10670.

[yeah, sand from dunes and beach, before PNP destroyed all that. It took millenia to form, and a very short time to bulldoze, burn, and destroy. But they were just getting started. The radioactive and toxic chemical contamination would follow.]

P.211/242 (page I-11)

Figure I-10 A Photograph from April 25, 1967, Looking Northeast over Palisades Nuclear Plant Site. Note the Cleared Vegetation and Road Cut into the Sand Dune to the Right of the Circular Footprint of the Future Reactor Vessel Building and the Land Grading and Vegetation Clearing along the Beach to the South of the Site. The Original Photograph Caption States, “The lake is washing sand from the south disposal area.” Source: HDI 2024-TN10670.

[whoops. Wrong caption. Just cut and pasted from the previous page. Sloppy, rushed work. Any copy editing or proofreading performed? Who got paid for this?]

P.212/242 (page I-12)

Figure I-11 A Photograph from June 1968, Looking South over Palisades Nuclear Plant Site. Note the Cleared Vegetation and Road Cut into the Sand Dune to the Right of the Reactor Vessel Building and the Land Grading and Vegetation Clearing along the Beach to the South of the Site. Source: HDI 2024-TN10670.

[again, wrong caption. Photo looks east, and says so. Caption says something else. Sloppy work.]

P.214/242 (page I-14)

Figure I-13 A Photograph from August 31, 1967 Looking Southeast from the Auxiliary Building Foundation of Palisades Nuclear Plant. Note the Cleared Vegetation and Road Cut into the Sand Dune behind the Crane. The Existing Transmission Pole on Top of the Sand Dune Is Located Where the Current Transmission Lines and Structures Are Located Today. The Sand Dune Has Already Undergone Revegetation. Source: HDI 2024-TN10670.

[again, caption does not match photo]

[and how about that state park? And PPCC? These are all historic sites, worthy of protection. PNP could take them all out.]

[no mention of this in this EA. Why not? b/c it hasn't happened? In order to protect PNP? To grease the skids for it?]

P.221/242 (page J-1)

APPENDIX J

ECOLOGY ANALYSES AND TABLES

J.1 State-Listed Terrestrial Species

The U.S. Nuclear Regulatory Commission (NRC or Commission) reviewed the information in the

2006 supplemental environmental impact statement regarding State-listed species, Holtec's exemption request (Holtec 2023-TN10538), updated lists of species known to occur in Van Buren and Berrien counties (MNFI 2024-TN10861, MNFI 2024-TN10862), and other information

provided by the applicant (HDI 2024-TN10670: RAI-GEN-3, Attachment 2) and incorporates these species lists by reference. Table J-1 and Table J-2 below present the 58 State-listed species that have been observed in these two counties since 2000.

[why only Van Buren and Berrien? Why not Allegan, Cass, and Kalamazoo, at the very least? They cited all those counties for other analyses in this same EA. NRC should be consistent in this regard, by expanding its ECOLOGY ANALYSES AND TABLES here.]

Two State-listed species have been observed at the Palisades site: the endangered prairie vole and the threatened eastern box turtle (HDI 2024-TN10670: RAI-GEN-3, Attachment 2). The prairie vole is a small rodent that has not been seen in Van Buren County since 1960 and Berrien County since 1962 (MNFI 2021-TN10874).

[so is this an admission by NRC that the construction and operation of PNP, beginning in 1967, contributed to the extirpation of the prairie vole? NRC did not specify WHEN these two species were "observed at the Palisades site," but saying the vole has not been seen in VB Co.

since 1960 would indicate it had already been extirpated before PNP groundbreaking? By what, the sand quarry previously operated on the PNP site?]

Table J-1 State-listed Endangered and Threatened Terrestrial Species That Are Not Federally Listed and That Have Been Observed in Berrien or Van Buren County, Michigan since 2000 Are Not Amphibians or Reptiles

[is the word And missing? And Are Not...

Because otherwise, it doesn't read right, and is confusing]

P. 222/242 (page J-2)

Vascular
plant

Collinsia verna

Blue-eyed
Mary

T

Moist soil rich beech-maple
forests with a rich humus layer,
and on levees and terraces
within floodplain forests.

[no Year Last Observed provided on this entry]

P.225/242 (page J-5)

Vascular
plant

Primula meadia

Shooting star

E

Wet-mesic to *mesisaic* prairies
and prairie fens.

2013

[what does this word mean? It is so obscure that NRC should define it here]

P.226/242 (page J-6)

X = Presumed Extirpated but would be treated as
State Threatened.

[in key; that doesn't seem right; shouldn't it be: would be treated as State Endangered.
Threatened is less dire than Endangered. Extirpated is much more dire than Endangered.]

Year Last
Observed
in Van
Buren or
Berrien
County

[re: this, are biologists et al. looking but not seeing, or are they not looking?]

Table J-2 Amphibians and Reptiles Listed as State Endangered or Threatened That
Have Been Observed in Berrien and Van Buren Counties Before 2000 or
That are Listed as Species of Special Concern and Have Been Observed in
Berrien and Van Buren Counties

[why not further back in time? The year 2000 was only 25 years ago. Flora and fauna have been
here since time immemorial — not thousands, but likely millions of years, Ice Age excluded —
so at least 12,000 years, right? Was MI under ice that recently? Who/what lived ON or IN the
ice?]

[again, why not more counties that just these two? Including Kent, Ottawa? Consistency needed]

P.228/242 (page J-8)

Reptile

Terrapene
carolina carolina

Eastern box
turtle

T

Known from site (HDI 2024-TN10670 Enclosure 3, Attachment 2). Forested habitats with sandy soils near a source of water such as a stream, pond, lake, marsh or swamp; adjacent thickets, old fields, pastures, or vegetated dunes. Access to unshaded nesting sites in sandy, open areas, is critical for successful reproduction.

[Last seen in 2021 at the site? Could this, or any other T, E, or SC species listed here, or others not listed here, be used to stop PNP restart/SMR new builds, under ESA law, for example?]

J.2 Eagles and Migratory Birds

The Palisades site is located in the Mississippi flyway, an important bird migration route which extends from the Gulf Coast to the Arctic Circle. Migrant birds often fly at night, landing to rest early in the morning. Suitable habitats that allow migratory birds to feed, rest, and avoid predators are called stopovers. Large natural barriers may create crowded stopover locations because flights over the barriers mean long stretches without opportunities to rest or feed. Along the Mississippi flyway, Hudson Bay and the Great Lakes are major barriers. ***Many species of migratory birds likely use the Palisades site and vicinity during the spring and fall migrations***

P.229/242 (page J-9)

Plankton

Plankton are small and often microscopic organisms that drift or float in the water column. In some nearshore areas, there is excessive growth of the nuisance algae *Cladophora* spp. and toxic blooms of cyanobacteria occur in Green Bay, Wisconsin. While cyanobacteria that produces cyanotoxins have been found in inland lakes in Michigan there were no reported blooms in Lake Michigan during 2022 or 2023 (MEGLE 2024-TN10716).

[but won't PNP restart, and/or SMRs, worsen thermal wastewater impacts, contributing to toxic blue-green algae blooms?]

Macrophytes

Aquatic macrophytes are large plants, both emergent and submerged, that inhabit shallow water areas. Macrophytes within Lake Michigan include duckweed, cattails, and rushes. The U.S. Environmental Protection Agency Coastal Wetland Monitoring Program considers the coastal wetland vegetation in the southeast side of Lake Michigan to be degraded but less so when compared to plant communities in Lakes Ontario and Erie (EPA 2023-TN9721). The U.S. Environmental Protection Agency attributes this to less nutrient runoff and less invasive species as compared to the other Great Lakes. The areas directly adjacent to Palisades Nuclear Plant (Palisades) are sandy beaches, suggesting a relatively high-energy shoreline without much, if any, terrestrial vegetation.

[well of course there are dune grasses and even forests, just inland from the Lake]

P.229-230/242 (page J-9 to J-10)

Benthic Invertebrates

[quagga and zebra mussels are an excuse PNP uses for biocides that harm Lake Michigan]

P.230/242 (page J-10 to J-22)

Juvenile and Adult Fish

The Michigan Department of Natural Resources (MDNR) is responsible for managing fisheries in the State and Palisades is located within the Southern Lake Michigan Management Unit. Managed fisheries in the vicinity of the plant include trout (brown [*Salmo trutta*], non-native rainbow [*Oncorhynchus mykiss*], and steelhead [*Oncorhynchus mykiss irideus*]), salmon (Salmonidae), largemouth bass (*Micropterus salmoides*), perch (*Perca* spp.), walleye (*Sander vitreus*), and whitefish (*Coregonus* spp.). Walleye are stocked into waterbodies in the Southern Lake Michigan Management Unit in early spring, late spring, and fall by MDNR (MDNR 2019-TN10724).

[close parenthesis needed]

P.231/242 (page J-11)

J.6 State-listed Aquatic Species

Table J-4 State-listed Aquatic Species That May Occur Within 1 mi (1.6 km) of Palisades Nuclear Plant

[why just 1 mile radius — so small — especially for species that migrate much greater distances, including within short distance from PNP, such as 1 mile]

[other thermal, radioactive, and toxic wastewater impacts, from routine releases, but also catastrophic releases]

[give it a rest; retire and decommission, as planned and promised; close for good; permanent shutdown]

P.232/242 (page J-12)

J.7.1 Endangered Species Act Section 7 Consultation

As a Federal agency, the NRC must comply with the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.-TN1010), for any action authorized, funded, or carried out by the agency. The NRC proposed action is to reauthorize nuclear power operations *at the Palisades* in Covert Township, Michigan and refueling of the reactor.

[Nuclear Plant missing here]

J.7.1 Endangered Species Act Section 7 Consultation

As a Federal agency, the NRC must comply with the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.-TN1010), for any action authorized, funded, or carried out by the agency. The NRC proposed action is to reauthorize nuclear power operations at the Palisades in Covert Township, Michigan and refueling of the reactor. Under Section 7 of the ESA, the NRC must consult with the FWS and the National Marine Fisheries Service (NMFS) (“the Services” [collectively] or “Service” [individually]), as appropriate, ***to ensure that the proposed action is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.***

[what about that Eastern boxed turtle mentioned above as having been seen on site recently?
3,000 truck deliveries — they could run over the turtles — not to mention all the workers driving in and out]

J.7 Biological Evaluation

If the preliminary information reveals that listed species or critical habitats may be present, the action agency then typically prepares a biological assessment or biological evaluation to evaluate the potential effects of the action and determine whether the species or critical habitats are likely to be adversely affected (50 CFR 402.12(a); 16 U.S.C. 1536(c)-TN4459).

[which is higher level and which is lower level review. PNP restart should always receive the highest level review available]

P..233/242 (page J-13)

Biological assessments are required for any Federal agency action that is a “major construction activity” (50 CFR 402.12(b) (TN4312). A major construction activity is a construction project or other undertaking having construction-type impacts that is a major Federal action significantly affecting the quality of the human environment under the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.)(NEPA)(51 FR 19926-TN7600). However, the proposed action to reauthorize Palisades is not a major construction activity and therefore does not require the preparation of a biological assessment. Nonetheless, the NRC staff still must consider the impacts of this action on federally listed species and designated critical habitats. This consideration is presented below as a biological evaluation. Whether through a biological assessment or biological evaluation, if an action agency such as NRC finds that a proposed action “may affect” ESA-protected species or habitats, it must seek written concurrence from the relevant Service(s) under ESA Section 7.

[it is too a major construction activity — an ongoing one that began in 1967. The SMR new builds will only exacerbate this]

The NRC staff structured its biological evaluation in accordance with definitions from

50 CFR 402.12(f) (TN4312). Sections 3.6.1 and 3.7.1 of this EA define and describe the action area and state that no critical habitat for listed species occurs within it. Table J-5 describes each ESA-protected species potentially present in the action area, assesses the potential effects of the proposed action on each species, and presents the NRC's effect determination for each of species. Table J-6 compares the conclusions from this 2024 biological evaluation with those developed for a supplemental environmental impact statement prepared by NRC in 2006 for license renewal of the Palisades plant. Finally, Section 4.2 addresses the potential effects of the no-action alternative.

[B.S. Cite likely impacted species, by NRC's own account; what about the turtle!

That is, challenge NRC's flippant NLAAs

P. 240/242 (page J-20)

key to table

NLAA = not likely to adversely affect

Also challenge NE's

NE = No effect.

The radioactivity and toxic chemicals alone, let alone getting run over by vehicles, being killed by major construction activities such as new rad waste building construction, new dry cask storage pad destruction, and most destructive of all, the closely connected SMR new build scheme]

P.234/242 (page J-14)

Indiana bat

Baseline Information: According to the recovery plan (FWS 2007-TN934), the Indiana bat is a flying, insectivorous mammal that hibernates in caves and mines and forms maternity roosts in mature trees over 5-in. diameter at breast height, especially trees with exfoliating bark. It roosts and forages in forested or semi-forested areas. *Threats include disturbance to the hibernacula, loss and fragmentation of forested swarming and roosting habitat, chemical contaminants, collision with wind turbines, and white-nose syndrome.*

[PNP restart would emit toxic and radioactive chemicals into the surrounding environment; SMR construction would likely lead to further deforestation on the site — has Holtec ever revealed where, exactly, on the site, the two SMR-300s would be built?]

Preparation Impacts: 1-5 Proposed activities would occur only in previously

developed areas of site, and no forest would be disturbed (Figure 3-5 of this EA). Preparation activities are expected to occur over an 18-month period. The applicant has estimated that approximately 3,000 truck deliveries would take place over this period (HDI 2024-TN10670: RAI-GEN-1). Temporary increases in noise and traffic over this time period are unlikely to alter Indiana bat use of the site. ***Bat collisions with vehicles and human-made structures at nuclear power plants are not well documented but are likely rare based on available information (NRC 2024-TN10161: p. 3-63).***

[that's not very persuasive; sounds more like wishful thinking]

Operations Impacts:1-5 For the 2006 SEIS (NRC 2006-TN7346), operational impacts were determined to be NLAA. Proposed operational activities are anticipated to be similar in magnitude and frequency as the previous operations characterized in the SEIS. No forest would be disturbed. Indiana bats, if present in the area, have likely already acclimated to the noise, vibration, and general human disturbances associated with site maintenance, infrastructure repairs, and other site activities. Holtec reports no bat incidents at the Palisades site and states that it would consult with FWS as an administrative control for any unanticipated construction or tree removal activities during operations (Holtec International 2023-TN10538: pp. 94–95). The NRC staff recognizes that individuals may have to reacclimate to the resumption of past operational conditions, but based on the relatively short duration of the shutdown it is the staff's professional judgment that the adverse effects would not be substantial.

[again, wishful and self-justifying thinking. The bats probably have used the PNP site for 12,000 years, after the glaciers retreated at the end of the most recent Ice Age. PNP groundbreaking only began in 1967. That was “only” 55 years of construction and operational activity — a blip in the natural history of these bats. 2022-2025 closed for good status returned the site to what the bats had been used to for the better part of 12,000 years. Now NRC wants to bless Holtec's activities that would further stress these bats.]

P.235/242 (page J-15)

northern
long-eared bat
(NLEB)

[challenge NRC's NLAA, for same reasons we gave re: IN bat]

tricolored bat

[challenge NRC's NLAA, for same reasons we gave re: IN bat]

P.235-236/242 (page J-15 to J-16)

eastern
massasauga

[challenge NRC's flippant NLAA]

Preparation Impacts: 1-5 No activities are proposed in or adjacent to wetlands or other suitable habitats. *It is possible that individuals in undeveloped areas of the site could experience infrequent injury or mortality*

from vehicles using adjoining roadways. However, the roadways on the site are separated from favorable eastern massasauga habitats by roadside clearings several feet in width, and the potential for snake collisions are no greater than for other arterial roadways in the surrounding rural landscape.

Operations Impacts: Impacts from operational activities were determined to be NLAA in the 2006 SEIS (NRC 2006-TN7346). Proposed operational activities are anticipated to be of the same magnitude and frequency as anticipated in 2006.

[snakes could enter PNP site from outside, seeking habitat that NRC admits here exists on the site.

extinction by a thousand vehicle strikes. PNP roadways are no LESS of a threat than arterial roads in the surrounding rural landscape. NRC admits 3,000 vehicle deliveries associated with restart. Not to mention increasing numbers of workers coming and going, which has already begun.

Several FEET in width? I think the snakes could cross that, into the roadway danger zone.

Don't tread on me, literally — including tire treads

Operational radioactivity and toxic chemical releases from restart, in addition to what PNP has already disgorged since 1971, will also harm the snakes.]

P.236/242 (page J-16)

rufa red knot

[challenge NRC's flippant self-serving NLAA]

[industrial activity and car/truck strikes could harm birds, in addition to hazardous emissions from PNP. Cite similar reasons as IN bat protection.

Site should be allowed to return to natural state, providing sand dune forested wetland habitat, and restored natural beach habitat, for indigenous species, including this one]

P.236-237 (page J-16 to J-17)

Operations Impacts:1-5 The rufa red knot was not previously evaluated in 2006 SEIS (NRC 2006-TN7346; NMCCO 2005-TN10839). Undeveloped, unarmored beaches on or near site could potentially provide habitat but would not be disturbed or altered by operational activities. Holtec has a current permit (MEGLE 2020-TN10696) allowing for maintenance dredging of sand and placement of dredged materials on the beach (Section 3.6.1.1).

Dredging locations occur only in previously disturbed areas (Holtec International 2023-TN10538: p. 95). Holtec reports no new and significant information regarding bird collisions with plant structures or transmission lines (Holtec International 2023-TN10538: p. 4.3-2). Continued implementation of permit requirements, environmental protection plans, and BMPs for operational activities would be protective of the terrestrial habitats used by this species

[stop doing that. PNP restart is not even needed. State framing at the very top. Along with intro/summary.

Cite bird kills from flying into Shield Building at Davis-Besse

Holtec and NRC looking the other way, and assuming the best. Not acceptable given threats to such species as this.]

P.237/242 (page J-17)

piping plover
(Great Lakes
DPS)

[challenge nrc's flippant LLAA

I think I saw piping plovers at Lake MI College in South Haven at a NRC-Entergy meeting. So sometime between 2007-2022.]

Site Occurrence: The piping plover is not known from the Palisades site. The beach fronting the developed area has been too narrowed by past armoring to offer potentially suitable piping plover habitat (site observations by NRC ecologists in 2024). Undeveloped beaches on or near site could potentially provide habitat. Adults may pass through the area when moving to more suitable habitat along Lake Michigan.

[well, per above, I've seen them just several miles northwest. And they do have wings...]

whooping
crane

[challenge NRC's flippant NE]

P.238/242 (page J-18)

Site Occurrence: The whooping crane is not known from the Palisades site. Individuals from experimental populations are possible in Michigan, and even those are unlikely. Furthermore, none of the large marshes favored by the species occur on or near the Palisades site (Section 3.6.1 of the EA).

[challenge this — cite reference above of a marsh not far from PNP site — perhaps in Cumulative Impacts appendix?]

[cite impacts on Whooping Cranes from Fort Saint Vrain nuclear power plant risk of contamination to Platte River, upstream of Nebraska]

[species measured in only the hundreds of individuals continent wide]

“Non-essential” habitat is really objectionable, given the critically endangered status of this species.]

Continued implementation of permit requirements, environmental protection plans, and BMPs for operational activities would be protective of habitats *used by this species uses*.

[more sloppy, rushed, careless writing]

Karner blue
butterfly (KBB)

Baseline Information: The KBB is a flying insect that favors ***oak savanna and pine barren habitat containing blue lupine (*Lupinus perennis*)*** (FWS 2024-TN10778). Recent (2024) IPaC searches did not mention this species, but the NRC staff is evaluating it because it was addressed in the 2006 SEIS.

Site Occurrence: The KBB is not known to occur on the Palisades site, and the specialized habitat it requires is not present on the site or in the surrounding landscape.

Preparation and Operations Impacts: No preparation or operational

activities would take place in or adjacent to habitat for the KBB.

[compare habitats mentioned nearby, as/per just above. Butterflies have wings. They can move and migrate.]

Mitchell's satyr
butterfly (MSB)

Baseline Information: The MSB is a flying insect with nine known populations in Michigan (FWS 2021-TN10883), and otherwise known or suspected to occur in Alabama, Indiana, Michigan, Mississippi, Ohio, and Virginia (FWS 2021-TN10882). Primary habitat is sedge-dominated wetlands, including fens and wetland edges of beaver ponds, swamps, and seeps (FWS 1998-TN10884, FWS 2021-TN10883). Threats include wetland habitat loss from urban development and adjacent human activities, hydrologic alteration, over-collection by butterfly collectors, inadequacy of existing regulatory mechanisms, limited ability to colonize new habitat patches, infection with the reproductive bacterial parasite *Wolbachia*, and climate change (FWS 2021-TN10883: p.19-24).

Site Occurrence: The MSB is not known to occur on the Palisades site. No sedge-dominated fens favored by the MSB are present on site (NRC 2006-TN7346: p. 4-34).

Preparation and Operations Impacts: No preparation or operational activities will occur in or adjacent to habitat for this species.

[challenge NRC's flippant NE. Compare w/habitats mentioned in EA, per above. Butterflies DO have wings...]

[in terms of catastrophic radiation release impacts, including on birds, insects, etc, cite Mousseau; cite the German biological artists who won the Nuclear-Free Future Award for Education in 2016]

Monarch
butterfly

[challenge NLAA

Based on sightings and presence of mildweed alone — see just below

Need to save this iconic species]

P.239/242 (page J-19)

Site Occurrence: Flying adults were observed by NRC staff in September 2024 visiting the Palisades site. Widely scattered, occasional milkweed (*Asclepias* spp.) plants were observed by NRC staff in 2024 south of Van Buren State Park, on vegetated dunes close to the beach, and on dunes along the access road.

Monarchs and milkweeds are known from Van Buren State Park and site vicinity based on a review of iNaturalist in 2024 (<https://www.inaturalist.org/>). Larvae are potentially present wherever milkweeds are present.

Preparation Impacts: 1-5 Ground disturbance as part of preparation could disturb widely scattered milkweed plants growing amid sparse and ruderal vegetation in areas of previously disturbed soils. However, milkweed is a common, quick-growing herbaceous plant that is present at least sparsely in most areas of non-forest vegetation in the area. None of the affected areas contain dense or extensive patches of milkweed. While it is possible that a few milkweed plants containing monarch larvae could be killed, it is unlikely that the losses would noticeably affect monarch populations in the region. If a few milkweed stems are killed by herbicide applications, the losses are likewise not likely to result in noticeable effects on the regional population. Any insecticide applications would likely be limited to in or around buildings or paved areas where milkweed is not present.

[extinction by a thousand cuts — herbicide applications, vehicle strikes, etc.]

Pitcher's thistle

[challenge NLAA]

Site Occurrence: Pitcher's thistle has been observed in undeveloped dune areas on the site, on open sand dune and flats (NRC 2006-TN7346: p. 2-45; HDI 2024-TN10670). The species was known from 1980s and 1990s to occur near the cooling towers. However, none was reported near the cooling towers in 2005.

[cite acid vapor plume from cooling towers for decades on end as a contributing factor, likely a major one]

P.239-240/242 (page J-19 to J-20)

Site Occurrence: Pitcher's thistle has been observed in undeveloped dune areas on the site, on open sand dune and flats (NRC 2006-TN7346: p. 2-45; HDI 2024-TN10670). The species was known from 1980s and 1990s to occur near the cooling towers. However, none was reported near the cooling towers in 2005. But 113 individuals (9 mature and 104 first year plants) were reported in 2005 in the northern end of the site on a beach grass stabilized dune community and flats adjacent to Van Buren State Park. In a field survey

in 2024, 64 individuals were observed approximately 1,000 ft east of the south cooling tower, in a naturally occurring dune clearing surrounded by

deciduous forest. But none was observed in the previous locations where it had been once seen on the site.

Preparation Impacts:1,4,5 No activities such as land disturbances, mowing, or herbicide application would take place in or adjacent to areas where Pitcher's thistle is known to occur or previously occur.

Operations Impacts:1,4,5 In the 2006 SEIS (NRC 2006-TN7346), operational impacts were determined to be NLAA based on the following: (1) Pitcher's thistle did not occur in locations where it would be affected by operations, **(2) no refurbishment or ground-disturbing activities were proposed during the LR period**, (3) the applicant had pre--disturbance procedures in place to evaluate impacts to federally listed species, and **(4) Michigan EGLE regulates the dune habitats, so any ground disturbance in habitat for this species would require a permit**. The same assessment applies to resumption of operations at the present time. The population found in 2024 would not be affected by routine site operation or management, for the following reasons: (1) No disturbances, mowing, or herbicide application to areas where populations are known to exist; (2) continued operations and maintenance activities would be similar and be of same magnitude and frequency as previous operations; **(3) dredging (MEGLE 2020-TN10696) would continue to disturb beach and dune areas, likely preventing establishment of new plants**; (4) applicant has pre--disturbance procedures in place to evaluate impacts to federally listed species; (5) Michigan EGLE regulates dune habitats, so any ground disturbance in habitat for this species would require a permit; and (6) population found in 2024 separated from the mechanical cooling towers by approximately 1,000 ft of mature deciduous forest. The cooling towers are equipped with drift eliminators. Any drift would be unlikely to penetrate the dense forest, even in leaf-off conditions. See Section 3.6.3 of the EA for a discussion of cooling tower impacts on terrestrial plants.

[well they are now!]

Which under Whitmer they seem very poised to rubberstamp — SMR construction will majorly disturb vast swaths of the site

Oh good, so PNP activities are guaranteed to prevent this E/T/SC species from ever re-establishing itself on the PNP site — anti-ESA!]

See Section 3.6.3
of the EA for a discussion of cooling tower impacts on terrestrial plants

[given the key habitat at PNP and nearby, this species deserves the utmost protection — including no restart, and no SMR new builds]

P.241/242 (page J-21)

NEP = in the vicinity of the action area, this species is part of a nonessential experimental population.

[outrageous thing to say about Whooping Cranes, given their critically endangered small numbers — how can any population, even individual(s), be considered “nonessential”? How can they be called “experimental”? Their decline and loss is human caused.]

Potentially
Present in the
Action Area?

[challenge NRC’s flippants No’s — of course they are all potentially present, or could be, if let alone, not disturbed. The only reason they have not been seen on site is due to Cumulative Impacts, on the site, and beyond, as well as perhaps no one at PNP is really looking for them with any required regularity?]

FWS
Concurrence
Date

[how to influence TBD’s? FWC concurrences? FWS should do its job, protect these and other species, and reject concurrence with NRC, where Nobody Really Cares. FWS should care. It’s their job]

NLAA = may affect, not likely to adversely affect. NE = No effect.

[key to table]

(c) The ESA does not require Federal agencies to seek FWS concurrence for “no effect” determinations. For
n/a = not applicable; TBD = to be determined; the NRC will seek the FWS’s concurrence following the issuance
of this draft EA.

[challenge all NRC NLAA and NE conclusions]

Endangered Species Act Section 7 Consultation with the National Marine Fisheries Service
As discussed in Section 3.7.1.2 of this EA, no federally listed species or critical habitats under NMFS’s jurisdiction occur within the action area. Therefore, the NRC staff did not engage the NMFS pursuant to ESA Section 7 for the proposed Palisades reauthorization.

[well, they should have, given impacts on Lake MI's aquatic ecology and species in decline]

J.8 Magnuson–Stevens Act Essential Fish Habitat Consultation

The NRC must comply with the Magnuson–Stevens Fishery Conservation and Management Act of 1996 (MSA), as amended (16 U.S.C. 1801 et seq.-TN7841), for any actions authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken that may adversely affect any essential fish habitat (EFH) identified under the MSA.

In Section 3.7.1.2 of this EA, the NRC staff concludes that the NMFS has not designated any EFH under the MSA within the action area and that the proposed Palisades reauthorization would have no effect on EFH. Thus, the MSA does not require the NRC to consult with the NMFS for the proposed action.

[all agencies are shirking their responsibilities under the act, to the detriment and harm of Lake MI's EFHs]

P.242/242 (page J-22)

.9 National Marine Sanctuaries Act Consultation

The National Marine Sanctuaries Act of 1966, as amended (16 U.S.C. § 1431 et seq.-TN7197), authorizes the Secretary of Commerce to designate and protect areas of the marine environment with *special national significance due to their conservation, recreational, ecological,*

historical, scientific, cultural, archaeological, educational, or aesthetic qualities as national marine sanctuaries. Under Section 304(d) of the act, Federal agencies must consult with the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries if a Federal action is likely to destroy, cause the loss of, or injure any sanctuary resources.

In Section 3.7.1.2 of this EA, the NRC staff concludes that no marine sanctuaries occur near Palisades and that the Palisades reauthorization would have no effect on sanctuary resources. Thus, the National Marine Sanctuaries Act does not require the NRC to consult with the National Oceanic and Atmospheric Administration for the proposed action.

[**Lake MI at/near PNP sure qualifies for this!** again, each of the agencies has dropped the ball, in violation of the letter and spirit.

Lake MI at/near PNP should be under consideration and development of NMSA status. Compare the one that ELPC celebrated just several years ago — in Lake Huron? Thunder Bay? yes, near Alpena!]

ADDITIONAL COMMENTS:

Rust buckets leak

Nuclear lemon

Jalopy

You can't kill a million people with your car

Unless it's got a nuclear weapon, or dirty bomb, in the trunk

So we come full circle

or reactor meltdown/HLRW fire

[this 242 page document is not worth the paper it's written on]

[HLRW — football field metaphor, hockey rink metaphor — sure wouldn't want to be sitting in that stadium!]

[Covert, MI = no secrets here...NOTHING to hide...]