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Nuclear Licensing Board Grants Evidentiary Hearing on Risk of Brittle Vessel Fracture at Entergy Nuclear’s Palisades Atomic Reactor

Environmental Coalition Challenges Safety Regulation Rollbacks, Calls for Permanent Reactor Shutdown

Covert, MI and Rockville, MD—The majority of a U.S. Nuclear Regulatory Commission (NRC) Atomic Safety and Licensing Board Panel (ASLBP) has issued a “MEMORANDUM AND ORDER” granting an evidentiary hearing to a coalition of environmental groups and concerned local residents concerned about the safety risks of the worst embrittled reactor pressure vessel (RPV) in the U.S., at Entergy Nuclear’s Palisades atomic reactor on the Lake Michigan shoreline in southwest Michigan. Palisades’ RPV will violate Title 10 of the Code of Federal Regulations, Part 50, Appendix G safety standards by December 2016, unless Entergy’s application for an Equivalent Margins Analysis (EMA) is approved by NRC beforehand.

“Entergy’s reliance on ‘Equivalent Margins Analysis’ is a leap of logic that no one should fall for,” stated Michigan Keegan of Don’t Waste Michigan. “It’s time to pull the plug on Palisades, and shutdown before meltdown,” Keegan concluded.

The coalition, comprised of Beyond Nuclear (Takoma Park, MD), Don’t Waste MI (Grand Rapids), MI Safe Energy Future—Shoreline Chapter (South Haven), and Nuclear Energy Information Service (NEIS, of Chicago), on March 9th filed an intervention petition against Entergy’s second major License Amendment Request (LAR) to NRC in just the previous few months, due to chronic age-related degradation at Palisades.

“Somewhere along the way, the mission of the NRC transformed from saving the public to saving the utility companies,” said Terry Lodge of Toledo, who serves as the coalition’s legal counsel. “Instead of asking the question, ‘How can we provide maximum safety to the public from the dangers of nuclear power?’, the only issue for the NRC is, ‘What’s the minimum we can ask a power company to do to lend the appearance of concern while running their deteriorating machine into the ground for profit?’ We’re the only party holding out for protection of people,” Lodge concluded.

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This current Entergy LAR seeks to apply an EMA regarding loss of safety-significant “Upper-Shelf Energy” in RPV plates and welds. If successful, the intervention could force the permanent shutdown of the 44-year-old, problem-plagued nuclear power plant. The coalition cites the risk of catastrophic release of hazardous radioactivity to the environment due to a potential “ductile tearing,” or fracture, of the neutron radiation-embrittled and thermally stressed RPV, causing a Loss-of-Coolant-Accident (LOCA), core meltdown, and containment failure.

Links to the ASLBP’s ruling, the coalition’s intervention petition and contention, and related documents (the coalition’s expert witness declaration, by Arnold Gundersen, Chief Engineer at Fairewinds Associates, Inc. of Burlington, Vermont; a relevant, recent Greenpeace Belgium expert report; etc.) have been posted at Beyond Nuclear’s website at this link: http://www.beyondnuclear.org/safety/

“Finally, after years of expressing concerns about the embrittled RPV and the poor welding quality history at Palisades, we are being heard that there is a problem with their testing and monitoring methods,” said Bette Pierman, Chair of Michigan Safe Energy Future—Shoreline Chapter, who resides in Benton Harbor, just over 10 miles from Palisades. “It is our lives that are at risk and we have been at risk as this aging plant is allowed to continue to operate with equipment that has a history of breakdowns with regularity. The actual condition of this reactor pressure vessel is critical information for granting their continued operation. Relying on a dubious equivalent margins analysis is not reassuring and should not be an acceptable practice to ensure our safety at this location since it does not give us accurate information about the real situation at this plant,” Pierman concluded.

“We filed this intervention in hopes of preventing a Fukushima on the Lake Michigan shoreline,” said Kevin Kamps of Beyond Nuclear, a southwest Michigan native, and board member representing the Kalamazoo Chapter of Don’t Waste MI. “The Japanese Parliament concluded that collusion between regulator, industry, and government officials was the root cause of the ongoing Fukushima nuclear catastrophe, and frighteningly, we’ve got that in spades at Palisades, between NRC, Entergy, and the likes of U.S. Representative Fred Upton.”

The Great Lakes downstream from Palisades serve as the drinking water supply for 40 million people in eight U.S. states, two Canadian provinces, and a large number of Native American First Nations. In fact, the risk to Chicago’s drinking water supply from Lake Michigan is what has motivated NEIS of Illinois to watchdog Palisades for decades.

The RPV contains the reactor core and its highly radioactive nuclear fuel. As confirmed by NRC, as well as the reactor’s various owners and operators, numerous times over the past decades, Palisades has long had the worst embrittled RPV in the U.S. The embrittlement is caused by neutron radiation bombardment impacting impurities – such as nickel and copper -- in the RPV walls and welds. Entergy and its contractor, Westinghouse Nuclear, now admit that sulfur impurities in the metallic plates also make Palisades’ RPV vulnerable to ductile tearing. (continued over)
The age-related degradation has been so bad, for so long, at Palisades, that the nuclear utilities, and NRC, had previously indicated “End-of-Life” (permanent closure) dates as early as 1995. However, that has been postponed till 1999, 2000, 2001, 2004, 2014, April 2017, and now August 2017, thanks to regulatory rollbacks. Palisades’ “Charpy V-Notch Upper-Shelf Energy” will also fall below the 50 ft.-lb. screening criteria by December, 2016, Entergy admits. The company has thus applied to NRC for yet another weakening of the safety rules, to allow continued operation into 2017 and beyond. Despite widespread environmental and public interest resistance, in 2007, NRC rubber-stamped a 20-year license extension at Palisades, allowing it to operate until 2031.

A severe overcooling of the RPV, as due to activation of the emergency core cooling system (ECCS), combined with sudden re-pressurization, could cause pressurized thermal shock (PTS) – a one-two punch that could fracture the RPV metal or welds at an internal flaw. The coalition recently appealed to the full NRC Commission to overturn the ASLBP’s rejection of a PTS-related contention, separate and distinct from this current EMA proceeding, but parallel and overlapping.

Arnie Gundersen, Chief Engineer at Fairewinds Associates, Inc. in Burlington, Vermont, provided an expert declaration, on behalf of the environmental coalition, and critiqued the beleaguered Palisades RPV in the previous December 1, 2014 filing. Gundersen’s declaration was re-submitted as the technical basis for intervenors’ current legal challenge, as well. The ASLBP majority cited Gundersen’s expert declaration as a basis for granting the evidentiary hearing on the merits of the coalition’s technical safety concerns.

Gundersen has challenged NRC’s and Entergy’s reliance on mere mathematical estimates and extrapolation, rather than readily available, hard physical data. The last metal sample (surveillance coupon) extracted and tested at Palisades was in 2003; the next scheduled is not until 2019. The ASLBP majority has ruled that the coalition’s call for the extraction and testing of one or more capsules is a permissible challenge deserving further consideration.

The ASLBP also cited the coalition’s reliance on a Greenpeace Belgium expert report on potentially catastrophic micro-cracking in two Belgian RPVs as grounds for granting the evidentiary hearing. Greenpeace Belgium cited two nuclear materials experts, as well as the head of the Belgian nuclear regulatory agency, as warning that RPVs worldwide should be carefully examined for such micro-cracking, due to pressurized hydrogen blistering of the RPV metal. NRC has required no such tests, nor has Entergy performed them. The coalition urges that Palisades be the first U.S. RPV to be subjected to such an examination, given the plague of problems already known.

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Critics have for decades brought to the attention of the NRC the dangerously advanced embrittlement at Palisades. Despite hard-to-garner meetings with NRC Commissioners (Magwood, in March 2013) and Chairmen (Jaczko in May 2012; Macfarlane in June 2014) having been secured on Palisades’ RPV safety concerns, each time this fragile can has been kicked further down the road by the captured, complicit, and inept regulatory agency.

Intervenor Alice Hirt with Don’t Waste Michigan in Holland said “I feel like Alice in Atomic Blunderland, hearing Humpty Dumpty tell me we can’t take the metal sample, because if we take the sample, we won’t have any samples left to take. Consequently, they operate the reactor vessel blind to the potential of shattering, fracturing, or tearing, which would render Lake Michigan and surrounding environs uninhabitable forever. This is criminal negligence.”

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