

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

In the Matter of	)	Docket Nos. 50-266 & 50-301-SLR
NextEra Energy Point Beach, LLC	)	
(Point Beach Nuclear Plant, Units 1 and 2, Subsequent License Renewal Application)	)	May 28, 2021
	)	

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**PHYSICIANS FOR SOCIAL RESPONSIBILITY WISCONSIN’S COMBINED REPLY  
IN SUPPORT OF MOTION TO AMEND CONTENTION 2 (INADEQUATELY  
TESTED REACTOR COOLANT PRESSURE BOUNDARY)**

Now comes the Petitioner, Physicians for Social Responsibility Wisconsin (“PSR WI”), on its behalf and also on behalf of its members, by and through counsel, and replies in support of its Motion to Amend Contention 2 and in opposition to the Answers filed by NextEra Energy Point Beach, LLC and the Nuclear Regulatory Commission Staff.

**Introduction**

After being shown significant proof that the expensively-constructed calculations for predicting boiling water reactor (BWR) embrittlement have not reflected conservatism for five years, the responses of NextEra and the NRC Staff are underwhelming. The implications of this alarming disclosure for Point Beach -- despite its being a pressurized water reactor (PWR) -- are troubling when viewed in combination with the dearth of hard science on the state of Point Beach embrittlement.

NextEra just permanently shut down the only BWR in its fleet, Duane Arnold in Iowa. In 2009, the NRC Staff, in requests for additional information related to a pending license extension request, noted that Duane Arnold’s “stainless steel core shroud is subject to radiation

embrittlement resulting in loss of structural integrity due to a low pressure coolant injection thermal shock transient.”<sup>1</sup> The Staff requested that the “applicant include a reflood thermal shock analysis as a part of a time-limited aging analysis (TLAA) for the core shroud at DAEC.”

The direct implications of the April 2, 2021 EPRI letter (ADAMS ML21084A164) for the operational safety of many of the 31 U.S. commercial boiling water reactors, are, admittedly, not apples-to-apples with PWR embrittlement concerns. But they are also not apples-to-oranges. Embrittlement tracking is already not being performed by the NRC and its licensees in a thoroughly exacting, scientific manner, irrespective of reactor type. The belated discovery of nonconservatism in the BWR software calculations since 2016 dramatically reinforces that truth. One might hope that NextEra, concerned in retrospect about the nonconservatisms of the embrittlement safety rails for Duane Arnold since 2016 which were presumed to be the result of prudent computations, would now be at the forefront of those demanding analysis of Arnold’s true metallurgical status and sharing that scientific data throughout the nuclear industry. Petitioners hope that Nextera will insist upon complete understanding of the apparent disconnect of scientific theory from scientific fact respecting BWR embrittlement calculations.

### **The New Information Satisfies Contention Admissibility Requirements**

Contrary to the positions taken by NRC Staff and NextEra, the new information in the amended contention satisfies 10 C.F.R. § 2.309(f)(1)(iv), because it is material to the findings the NRC must make on the Subsequent License Renewal Application (SLRA). In license renewal proceedings, 10 C.F.R. Part 54 establishes the scope of the proceeding for safety

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<sup>1</sup><https://www.nrc.gov/docs/ML0925/ML092580547.pdf>

concerns.<sup>2</sup> NRC regulations promulgated pursuant to the Atomic Energy Act at 10 CFR § 54.29(a) allow a renewed license to issue if “[a]ctions have been identified and have been or will be taken . . . that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB [current licensing basis],” including “managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under § 54.21(a)(1). . . .”<sup>3</sup> Section 54.21(a)(1) refers to components such as core internals of the Point Beach reactors that are subject to embrittlement. PSR WI maintains that the requisite reasonable assurance is lacking here, and there is a “significant link between the claimed deficiency and either the health and safety of the public or the environment.”<sup>4</sup> A pressurized thermal shock failure at PBNP could result in a Class 9 accident. The EPRI revelations should prompt immediate and intensive examination of the PWR software involved in addressing aging management of embrittlement in PWRs to achieve reasonable assurance that disturbing nonconservatisms have not also been incorporated into that code. The EPRI revelations not only comprise a warning about verifying software adequacy, but they also underscore the need for metallurgical hard science respecting the Point Beach SLRA, and that the timing of the testing of the “standby” coupons will not support fulfillment of the requirement of 10 CFR § 54.29.

The proposed amendment allegations satisfy 10 C.F.R. § 2.309(f)(1)(v), because they support the Petitioner’s position that there is a troubling NRC regulatory policy to downplay the

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<sup>2</sup>*PPL Susquehanna, LLC* (Susquehanna Steam Electric Station, Units 1 & 2), LBP-07-4, 65 NRC 281, 306 (2007).

<sup>3</sup>10 CFR § 54.29(a).

<sup>4</sup>*Entergy Nuclear Vermont Yankee, L.L.C. and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), LBP-04-28, 60 NRC 548, 557 (2004).

lack of coupons by substituting sophisticated computerized hypotheses for hard science.

The amended contention satisfies 10 C.F.R. § 2.309(f)(1)(vi), because it supplements the already-depicted factual dispute with the SLRA, *i.e.*, that 40 years' of coupons cannot satisfy the need for explicit scientific knowledge about 60+-year-old reactor internals and components.

The amended contention does not run afoul of 10 C.F.R. § 2.335; it is not an impermissible challenge to NRC regulations. The NRC Staff and NextEra routinely undertake to portray nearly any challenge by intervenors as an affront to NRC regulations. PSR WI's challenge here, by contrast, is to the abuses of discretion committed by the Staff in administering the regulations, by means of allowing poorly-supported workarounds and insufficiently-corroborated models to supplant scientific evidence.

The proposed amendment satisfies 10 C.F.R. § 2.309(f)(1)(iii), because it raises issues that are within the scope of this proceeding. “[E]mbrittlement is clearly within the scope of license renewal . . . as evidenced by references to pressurized thermal shock, the reactor vessel, and related concepts in the license renewal rules.”<sup>5</sup> As the Licensing Board in *Palisades* further observed:

[T]he longer any plant operates, the more embrittled the RPV [reactor pressure vessel] becomes, with decreasing safety margins in the event of an abnormal occurrence.

The phenomenon of radiation embrittlement occurs when a neutron from the reactor core strikes an atom of the material making up the reactor vessel, thereby knocking the atom out of position. Over time as more and more atoms are hit, the mechanical properties of the material change. The material becomes harder to deform and loses its ability to withstand deformation without breaking or fracturing, particularly at low temperatures. The process is a serious safety concern because it can lead to failure of the reactor pressure vessel.<sup>6</sup>

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<sup>5</sup>*Nuclear Management Company, LLC* (Palisades Nuclear Plant), LBP-06-10, 63 NRC 314. 350 (2006).

<sup>6</sup>*Id.* at 349, fn. 144.

Petitioners ask the ASLB to “[b]ear[ ] in mind the general admonition that technical perfection is not an essential element of contention pleading.”<sup>7</sup> The “[s]ounder practice is to decide issues on their merits, not to avoid them on technicalities.”<sup>8</sup> To the extent that PSR WI has not articulated its arguments completely, the ASLB still has more than adequate bases to admit Contention 2, as amended.

### **Conclusion**

The responses of NextEra and the NRC Staff call to mind Winston Churchill’s observation that “Men occasionally stumble over the truth, but most of them pick themselves up and hurry off as if nothing ever happened.”<sup>9</sup> There is grave significance in the EPRI revelations about the BWR embrittlement nonconservatisms that propels their legal relevance to the 10 CFR § 54.29 determination. NextEra and the Staff would have the ASLB pretend that verifiable scientific evidence of the physical capabilities of the Point Beach reactors to operate out to fully 80 years should be excluded from this proceeding as irrelevant. Given the regulatory frailties laid bare by the EPRI nonconservatism revelations, it is manifest that the Board must not let NextEra and the Staff hurry off to carelessly threaten the entire Great Lakes region.

For all of the reasons stated above, the Motion should be granted, and the proposed supplementation and amendment of PSR WI’s Contention 2 should be allowed.

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<sup>7</sup>*Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-3, 53 NRC 84, 99 (2001) (citing *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 649 (1979)).

<sup>8</sup>*South Texas*, ALAB-549, 9 NRC at 649.

<sup>9</sup>BBC, “50 Sir Winston Churchill Quotes to Live By,” <https://www.bbcamerica.com/blogs/50-%09churchill-%09quotes--49128>

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*	*	*
*	*	*

I hereby certify that on May 28, 2021, I deposited the foregoing “PHYSICIANS FOR SOCIAL RESPONSIBILITY WISCONSIN’S COMBINED REPLY IN SUPPORT OF MOTION TO AMEND CONTENTION 2 (INADEQUATELY TESTED REACTOR COOLANT PRESSURE BOUNDARY)” in the NRC’s electronic docket of this proceeding, and according to the protocols of that system, it was to be automatically transmitted to all parties of record registered to receive electronic service.

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