

April 6, 2015

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
ENERGY NUCLEAR OPERATIONS, INC.) Docket No. 50-255-LA
)
(Palisades Nuclear Plant))

NRC STAFF BRIEF IN RESPONSE TO PETITIONERS'
STATEMENT REGARDING SISTER-PLANT DATA

In accordance with the opportunity afforded by the Atomic Safety and Licensing Board (“Board”) during the Oral Argument held on March 25, 2015, the Staff of the U.S. Nuclear Regulatory Commission (“NRC Staff” or “Staff”) hereby responds to a statement made by Petitioners Beyond Nuclear, Don’t Waste Michigan, Michigan Safe Energy Future – Shoreline Chapter, and the Nuclear Energy Information Service (collectively, “Petitioners”) in their “Combined Reply” of January 20, 2015.¹ Specifically, the Staff herein responds to the Petitioners’ statement that “[Mr.] Gundersen has attested to the lack of proof that the metals from the various [reactor pressure vessels] RPVs match.”² For the reasons discussed below, the Staff submits that the referenced statement is factually incorrect and should be disregarded.

¹ “Petitioners’ Combined Reply in Support of Amended Petition to Intervene and for a Public Adjudication Hearing of Entergy License Amendment Request for Authorization to Implement 10 CFR §50.61a, ‘Alternate Fracture Toughness Requirements For Protection Against Pressurized Thermal Shock Events’” (Jan. 20, 2015) (“Combined Reply”).

² *Id.* at 5.

BACKGROUND

This proceeding involves an operating license amendment request (“LAR”) submitted by Entergy Nuclear Operations, Inc. (“Entergy”) on July 29, 2014, in which Entergy requested approval of its proposed use of the alternate fracture toughness requirements in 10 C.F.R. § 50.61a at its Palisades Nuclear Plant (“Palisades” or “PNP”).³ A notice of opportunity to request a hearing on the LAR was published by the NRC on September 30, 2014.⁴ On December 1, 2014, the Petitioners filed a petition to intervene and request for hearing (“Petition”), in which they proffered one contention;⁵ on December 8, 2014, the Petitioners filed an amended petition.⁶ Entergy and the Staff filed answers to the Petition and Amended Petition on January 12, 2015;⁷ on January 20, 2015, the Petitioners filed their Combined Reply.

³ Entergy Letter PNP 2014-049, “License Amendment Request to Implement 10 CFR 50.61a, ‘Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events’” (Jul. 29, 2014), at 3 (Agencywide Documents Access and Management System (“ADAMS”) Accession No. ML14211A524). Entergy enclosed with its LAR a supporting analysis, WCAP-17628-NP, Rev. 1, “Alternate Pressurized Thermal Shock (PTS) Rule Evaluation for Palisades” (Jun. 2014) (“LAR Enclosure”) (ADAMS Accession No. ML14211A525). The LAR and the LAR Enclosure can be viewed in a “package” at ADAMS Accession No. ML14211A520.

⁴ “Biweekly Notice; Applications and Amendments to Facility Operating Licenses Involving No Significant Hazards Considerations,” 79 Fed. Reg. 58,812 (Sept. 30, 2014).

⁵ “Petition to Intervene and for a Public Adjudication Hearing of Entergy License Amendment Request for Authorization to Implement 10 CFR §50.61a, ‘Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events’” (Dec. 1, 2014) (“Petition”) (ADAMS Accession No. ML14335A807). The Petition was filed without a Certificate of Service (“COS”).

⁶ “Amended Petition to Intervene and for a Public Adjudication Hearing of Entergy License Amendment Request for Authorization to Implement 10 CFR §50.61a, ‘Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events’” (Dec. 8, 2014) (“Amended Petition”). The Amended Petition corrected a citation to a *Federal Register* notice (see Amended Petition at 1 n.21), attached the Amended Declaration of Bette Pierman, and was accompanied by a COS. Attached to both the Petition and the Amended Petition were (1) Declarations concerning the Petitioners’ standing to intervene (“Standing Declarations”) (Amended Petition at 23-30); and (2) “Exhibit A,” documenting what the Petitioners refer to as regulatory “roll backs” during Palisades’ operation (Amended Petition at 31-35). In addition, the Petitioners attached to their initial Petition, (3) the “Declaration of Arnold Gundersen” (Dec. 1, 2014) (“Gundersen Decl.”), and (4) “Declaration of Pierman, Kamps and Keegan Concerning Coupon Availability for PTS Testing” (Dec. 1, 2014).

⁷ See (1) “NRC Staff Answer to Petition to Intervene and Request for a Hearing Filed by Beyond Nuclear, Don’t Waste Michigan, Michigan Safe Energy Future–Shoreline Chapter, and the Nuclear Energy Information Service” (Jan. 12, 2014); (2) “Entergy’s Answer Opposing Petition to Intervene and Request for Hearing” (Jan. 12, 2015).

On March 25, 2015, the Board heard oral argument on the Petitioners' standing to intervene and the admissibility of their contention.⁸ During the course of Oral Argument, the Board observed as follows:

I guess it was raised by the petitioners in their reply on Page 5 where they say that 50.61a(f)(6)(i) requires that the surveillance material must be a heat-specific match for one of the materials for which RT(max-x) is being calculated.

And then they say Gundersen has attested to the lack of proof that the metals from the various RPVs, reactor pressure vessels, match.

We would allow the staff and Entergy to file a brief since this was raised in the reply and you haven't had an opportunity to address it. I don't believe it was raised in the original petition.⁹

The Staff's response to this statement is set forth below.

DISCUSSION

As noted by the Board, the Petitioners' Combined Reply includes the statement that "[Mr.] Gundersen has attested to the lack of proof that the metals from the various [reactor pressure vessels] RPVs match."¹⁰ The Board correctly observed that this statement first appeared in the Petitioners' Combined Reply of January 20, 2015, and was not included in either the Petition of December 1, 2014 or the Amended Petition of December 8, 2014; nor has the Staff's review of the Petition and Amended Petition disclosed any similar statement. Thus, the Staff has not had an opportunity to file a written response to that statement until now.

The Staff respectfully submits that the Petitioners' statement is factually incorrect and should be disregarded. As stated during oral argument by Counsel for Entergy and Counsel for

⁸ See Official Transcript of Proceedings ("Tr.") (March 25, 2015).

⁹ Tr. at 98 (Chairman Spritzer); *cf. id.* at 86-87 (Administrative Judge Dr. Arnold).

¹⁰ Combined Reply at 5.

the Staff,¹¹ nowhere in his Declaration did Mr. Gundersen assert that the Palisades metals do not match the metals from the other reactor pressure vessels referenced in Entergy's LAR. Indeed, the opposite is true: In Paragraph 27 of his Declaration, Mr. Gundersen stated:

27. H.B. Robinson 2, a 724 MWe plant that began operation in 1971, and Indian Point 2 and 3, two 1,024 and 1,041 MWe reactors that began operation in 1974 and 1976, are the nuclear plants that the NRC has considered similar sister plants and has therefore allowed Entergy to compare these reactor vessels at these plants with the aged and embrittled Palisades reactor vessel. The technological problem with comparing the two Indian Point reactors and H.B. Robinson with the Palisades NPP, is that the chosen plants are *very dissimilar*. The Palisades vessel was designed and constructed by Combustion Engineering while the other three aforementioned reactor vessels at H. B. Robinson and Indian Point are a Westinghouse design. While it is true that the material used to weld the reactor plates together to create the reactor vessel is similar among the four plants, the dramatically different nuclear core design and operational power characteristics make an accurate comparison impossible.¹²

In sum, contrary to the assertion in the Petitioners' Combined Reply, Mr. Gundersen did not allege in his Declaration that the materials used in the Palisades RPV are dissimilar from the materials used at the other plants referenced in the application.¹³ Moreover, the Petitioners have not pointed to any specific statement in his Declaration where such a statement was made.¹⁴ Mr. Gundersen's other assertions, regarding the other plants' nuclear core design and

¹¹ See Tr. at 87 (Kuyler); Tr. at 114 (Lindell).

¹² Gundersen Decl. at 10 (italics in original; underlined emphasis added). In addition, Mr. Gundersen stated that "Entergy has claimed that the Palisades plant has similar metallurgical characteristics in its welds to the three other aforementioned plants, and those similar sister plants have thus far shown relatively little embrittlement, unlike Palisades." *Id.* at 11, ¶ 29. While Mr. Gundersen then disputes Entergy's methodology for determining the Palisades RPV is safe, he nowhere disputes the similarity of the metals in the other plants' welds. See *id.*

¹³ See Gundersen Decl., *passim*. While Mr. Gundersen asserted that the other plants referenced in the application have "different nuclear core designs and operational power characteristics," *Id.*, ¶ 27, that statement does not support the Petitioners' claim that he "has attested to the lack of proof that the metals from the various [reactor pressure vessels] RPVs match."

¹⁴ Mr. Gundersen's Declaration is the basis for the Petitioners' assertions. As stated during Oral Argument, the Petitioners do not challenge "any other specific respect" in which Entergy failed to comply with § 50.61a, "[o]ther than the things that are cited in [Mr.] Gundersen's report." Tr. at 67 (Lodge).

operational power characteristics, do not bear upon the issue of whether those plants' RPV materials are a "heat-specific match" with the Palisades RPV materials, as required in 10 C.F.R. § 50.61a(f)(6)(i)(A),¹⁵ and therefore do not support the Petitioners' assertion.

Inasmuch as the referenced statement in the Petitioners' Combined Reply lacks any basis in fact and, indeed, controverts Mr. Gundersen's actual statement, the Petitioners' statement fails to present a litigable issue and fails to demonstrate a genuine dispute with the applicant on a material issue of fact. See 10 C.F.R. § 2.309(f)(vi). Accordingly, the statement in Petitioners' Combined Reply (and any similar statements made during Oral Argument) should be disregarded.¹⁶

¹⁵ As the Staff discussed previously, Mr. Gundersen's assertions concerning differences in the nuclear core design and operational power characteristics of the other reactor RPVs constitute a challenge to the rule, which requires an applicant to submit sister-plant data if the metals are a "heat-specific match," and "three or more surveillance data points measured at three or more different neutron fluences exist for a specific material." 10 C.F.R. § 50.61a(f)(6)(i). The rule then requires an applicant to perform certain statistical checks provided in the rule, including: (1) "estimate the mean deviation from the embrittlement model for the specific data set"; (2) "estimate the slope of the embrittlement model residuals"; and (3) "estimate the two largest positive deviations (i.e., outliers) from the embrittlement model for the specific data set." 10 C.F.R. § 50.61a(f)(6)(ii)-(iv). The embrittlement model (Equations 5, 6, and 7) accounts for the irradiation environment (i.e., the fluence, flux, and irradiation temperature), as well as the composition of the material (i.e., copper, nickel, phosphorus, manganese), and accounts for the effects of these variables on embrittlement as quantified by ΔT_{30} . This allows for comparisons between sister plants that quantitatively account for plant-to-plant differences in neutron exposure and irradiation environment, and for differences in material compositions between "sister plants." The Petitioners have not alleged that these steps were performed incorrectly, just that they should not have been performed at all on the sister-plant data due to differences in fluence resulting from differences in the core design and operational power characteristics of plants' RPVs. Differences in fluence, however, are accounted for in the analysis, as set forth above. See also, Staff Answer at 21-22 and 26; Tr. at 113-15, 118-19, 120 (Lindell).

¹⁶ See, e.g., *USEC, Inc. (American Centrifuge Plant)*, CLI-06-9, 63 NRC 433, 473-74, 478 (2006) (affirming the Board's determination that contentions were inadmissible on the grounds, *inter alia*, that they were based upon an "unsupported claim" or were "factually unsupported"); *Georgia Institute of Technology (Georgia Tech Research Reactor, Atlanta, Georgia)*, LBP-95-6, 41 NRC 281, 300 (1995) (rejecting a contention's assertion for lack of basis, finding that "[a] petitioner's imprecise reading of a reference document cannot serve to generate an issue suitable for litigation").

CONCLUSION

For the reasons discussed above, the statement in Petitioners' Combined Reply, that "[Mr.] Gundersen has attested to the lack of proof that the metals from the various [reactor pressure vessels] RPVs match," is factually incorrect, lacks any basis, and should be disregarded in the Board's consideration of the Petitioners' proffered contention.

Respectfully submitted,

/Signed (electronically) by/

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this 6th day of April, 2015

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ENTERGY NUCLEAR OPERATIONS, INC.) Docket No. 50-255-LA
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Pursuant to 10 C.F.R. § 2.305, I hereby certify that copies of the foregoing "NRC STAFF BRIEF IN RESPONSE TO PETITIONERS' STATEMENT REGARDING SISTER-PLANT DATA," dated April 6, 2015, have been served upon the Electronic Information Exchange, the NRC's E-Filing System, in the above-captioned proceeding, this 6th day of April, 2015.

Signed (electronically) by

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