



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

February 9, 2021

EA-20-081

Mr. Michael Strobe
Site Vice President
NextEra Energy Point Beach, LLC
6610 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - FINAL SIGNIFICANCE
DETERMINATION OF A GREEN FINDING; NRC INSPECTION
REPORT 05000266/2020090 AND 05000301/2020090

Dear Mr. Strobe:

This letter provides you the final significance determination of the preliminary White finding discussed in our previous communication dated August 3, 2020, which included Inspection Report 05000266/2020012 and 05000301/2020012. The finding involved the transport of a radioactive material package as Low Specific Activity II (LSA-II) that exceeded the LSA shipping limits for radiation levels as specified in Title 49 of the *Code of Federal Regulations* (CFR), Part 173.427. Your staff did not recognize that measured radiation levels were in excess of 10 mSv/ hour (1 Rem/hour) at 3 meters from the unshielded package, which exceeded the conditions for transporting LSA material; and thus, failed to ship the package as a Type B shipment. The inspection report can be found in U.S. Nuclear Regulatory Commission (NRC)'s Agencywide Documents Access and Management System (ADAMS) at accession number ML20216A765, accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html>.

In our letter dated August 3, 2020, we provided you the opportunity to attend a Regulatory Conference or provide a written response. In your letter dated September 11, 2020, (ML20255A142), you provided a response to the NRC staff preliminary determination regarding the finding. Your response indicated that you did not believe the apparent violations of 49 CFR 172 and 173 requirements occurred, and if the NRC concludes that violations of regulatory requirements occurred, that the finding does not rise to the level of White significance and should be characterized as no higher than Green. The NRC reviewed your September 11, 2020, letter, and does not agree with your position that a violation did not occur as discussed in our response in Enclosure 1. However, after considering the information developed during the inspection and the additional information you provided in your September 11, 2020, letter, the NRC has concluded, as discussed in Enclosure 1, that the finding will be characterized as Green, a finding with very low safety significance.

According to NRC Inspection Manual Chapter (IMC) 0609, appeal rights only apply to those licensees that have either attended a regulatory conference or submitted a written response to the preliminary determination letter. You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified Green finding. Such appeals

will be considered to have merit only if they meet the criteria given in the IMC 0609, Attachment 2. An appeal must be sent in writing to the Regional Administrator, Region III, 2443 Warrenville Road, Suite 210, Lisle IL 60532-4352.

The NRC also determined that four violations of NRC requirements occurred: (1) the failure to include the appropriate emergency response information for a shipment containing primary resin is a violation of 49 CFR 172.602(a); (2) the failure to include the appropriate package markings on the shipment is a violation of with 49 CFR 172.302(a); (3) the failure to ensure the shipment did not exceed the radiation level limits for shipping radioactive material as LSA is a violation of 49 CFR 173.427; and (4) the failure to describe the hazardous material in accordance with 49 CFR 173 is a violation of 49 CFR 173.22(a). The circumstances surrounding the violations were described in detail in inspection report number 05000266/2020012 and 05000301/2020012. These violations are being treated as non-cited violations in accordance with Section 2.3.2 of the NRC Enforcement Policy.

The NRC recognizes that your staff identified the issue during a routine quality assurance audit of your shipping activities. As discussed in Enclosure 1, the NRC staff identified some deficiencies in your evaluation of the issue, including your understanding of the applicable regulatory requirements for a Low Specific Activity shipment. Therefore, the NRC determined that credit for self-identification, as described in NRC Inspection Manual Chapter 0612, is not appropriate and that the cross-cutting aspect H.12 - Avoid Complacency remains applicable.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's ADAMS. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Sincerely,

for,

Mohammed A. Shuaibi, Director
Division of Reactor Safety

Docket Nos. 50-266; 50-301
License Nos. DPR-24; DPR-27

Enclosure:
Evaluation of Licensee's Response

cc w/ encl: Distribution via LISTSERV®

Letter to Michael Strope from Mohammed A. Shuaibi dated February 9, 2021.

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Evaluation of Licensee's Response

EA-20-081 Point Beach Shipment – Preliminary White Finding

The licensee's position and the U.S Nuclear Regulatory Commission (NRC)'s evaluation and conclusions are summarized below:

1. Licensee Position: The licensee stated that the 3-meter unshielded radiation levels were below 10 mSv/hr (1 rem/hr) at 3 meters (10 ft) from the unshielded material. The calculated values more accurately represent the radiation levels present. The technician was too close to the container, so the measurements taken were conservative.

Evaluation: The NRC did not find sufficient evidence to demonstrate that the technician's measurements were not valid. The licensee and its contractor performed dose rate calculations after the inspection was completed (using data and parameters obtained at the time of shipment preparation). These resulted in calculated radiation levels between 800 and 850 mrem/hr at 3 meters from the unshielded material. The NRC staff noted these calculations were developed, in part, based on some of the technician's measurements.

The NRC staff recognizes that differences between in-field radiation measurements and calculations are expected. Both methods have limitations: (a) radiation measurements may be affected by instrument response and calibration issues, actual distance and positioning from the source, size of detectors, etc., and (b) calculations may be affected by distribution of radionuclides in the material, analytical results of limited sample size, etc. In this case, the NRC staff did not identify any statistical anomalies in the licensee's in-field radiation measurements. However, the NRC staff observed that the material appeared to have some gradients in the radionuclide distribution (radiation levels were not fully uniform across the container), which may have impacted the licensee's calculations.

NRC Conclusion: The NRC concluded that the 3-meter unshielded radiation levels exceeded the limits for an Low Specific Activity II (LSA-II) shipment (i.e., 1 rem/hr at 3 meters from the unshielded material).

2. Licensee Position: The licensee stated that the shipment would not represent a violation of the Title 49 of the Code of Federal Regulations (CFR), Part 173.22(a)(2) requirements regarding packaging, because it was appropriately shipped in a Type B package. Under 49 CFR 173.403, "Type B package" means "a packaging designed to transport greater than an A1 or A2 quantity of radioactive material that, together with its radioactive contents, is designed to retain the integrity of containment and shielding required when subjected to the normal conditions of transport and hypothetical accident test conditions set forth in 10 CFR Part 71." See also 49 CFR 173.416 (Authorized Type B Packages).

NRC Evaluation: The Department of Transportation (DOT) regulations, at 49 CFR 173.427(d), and the NRC transportation regulations, at 10 CFR 71.0(d)(3) and 10 CFR 71.14(b)(3), required the licensee to package Shipment 19-037 in accordance with 10 CFR Part 71; including following the general provisions, the operating control requirements and the quality assurance requirements of Subparts A, G and H to 10 CFR Part 71, respectively. As specified, 10 CFR 71.4 defines a package as, "the packaging together with its radioactive contents as presented for transport," with further specification concerning the type of package (e.g., fissile material, Type A or Type B). In the case of Point Beach Shipment 19-037, the resin liner combined with the Energy Solutions Model 8-120B Type B cask formed a Type B(U) package. The Type B package was

Enclosure

necessary and prescribed because material that exceeds the unshielded dose rate of 1 rem/h at 3 meters does not meet the intent of the LSA material regulations that justify the use of less robust packaging that would otherwise be required for materials exceeding the applicable Type A quantities.

Subpart A of 10 CFR Part 71 invokes certain DOT requirements for NRC licensees including 49 CFR Part 172 (for marking, labeling, placarding, shipping papers, emergency response, training, and security plans). Per the Hazardous Materials Table in 49 CFR 172.101, there is only one proper shipping name and identification number that applies to Type B(U) packages that contain non-fissile radioactive material; the proper shipping name is "Radioactive Material, Type B(U) package non-fissile or fissile excepted" and the identification number is UN2916. The NRC transportation regulations and the DOT regulations invoked by the NRC do not allow for a situation where a Type B package is prescribed by the regulations but the corresponding package markings and/or shipping paper information reflects something other than a Type B package being used/offered for transport. Such an allowance, if it existed, would introduce confusion in communicating the hazard to shippers, drivers, inspectors, and emergency response personnel and thus is avoided in the regulations that apply to the transport of radioactive material. This position is consistent with NUREG-1608, Section 4.1.3, where a Type B package and a proper shipping name that would reference Emergency Response Guidebook (ERG), Guide No. 163 (i.e., the guide that applies to Type B shipments) is prescribed in cases where LSA material exceeds 1 rem/h at 3 m. The NRC recognizes that the proper shipping name that is mentioned in NUREG-1608 is no longer in use; however, the proper shipping name that would achieve the same result as described in Section 4.1.3 (i.e., Type B package being used and reference to ERG Guide No. 163) is "Radioactive Material, Type B(U) package non-fissile or fissile excepted."

NRC Conclusion: At the time of shipment, the licensee had survey information (in-field radiation measurements) that demonstrated that the external dose rates from Shipment 19-037 exceeded the conditions for transport as LSA material per 49 CFR 173.427. Therefore, the licensee was required to prepare the shipment in a manner that satisfied all requirements corresponding to a Type B(U) shipment; including package marking, shipping paper information and emergency response information.

3. Licensee Position: The licensee stated that a significance level of WHITE is not appropriate for this matter and that the significance should be no higher than GREEN. The licensee indicated that: (a) the shipment was conservatively shipped in a Type B package, and (b) the carrier had sufficient emergency response information to comply with 49 CFR 172.602(a) and 172.600(c).

NRC Evaluation: The NRC staff reviewed the information provided by the licensee. The NRC recognized that the radioactive material was transported in a Type B cask, which was required for the material transported (as discussed above). The robust construction and testing of the cask mitigate the impacts of an accident; however, the use of a Type B cask does not negate nor diminish the need for the emergency response information. For this shipment, the NRC concluded that the emergency response information was not accurate in two areas: (1) proper shipping name and UN number on the package markings and shipping papers, and (2) the characterization of the external exposure hazard and the effectiveness of normal fire-fighting equipment. However, in this case, the shipment was provided with other Department of Transportation required communications (radioactive placards and labels) that would have indicated to emergency responders the hazard

contained in the package. In addition, the shipment paperwork provided initial response information that would have aided emergency response personnel. Based on the difference between the information the licensee provided and that which was required, there would have been little impact on the initial response actions to a transportation accident in this case.

NRC Conclusion: The public radiation safety Significance Determination Process (IMC 0609 Appendix D) provides objective criteria to evaluate licensee failures to provide emergency response information that is required by 49 CFR 172.602. As described above, the shipment left the licensee's facility and control and did not fully meet the requirements of 49 CFR 172.602 (i.e., incorrect proper shipping name/UN number and incomplete/inaccurate emergency response information). However, the difference between the information the licensee provided and that which was required would have had little impact on the initial response actions by responders to a transportation accident in this case. Therefore, the NRC has determined the finding is green, a finding with very low safety significance.