UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 21, 2023

Mr. Bob Coffey
Executive Vice President, Nuclear
Division and Chief Nuclear Officer
Florida Power & Light Company
Mail Stop: EX/JB
700 Universe Blvd
Juno Beach, FL 33408

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 272 AND 274 REGARDING REVISION TO USE BEACON POWER DISTRIBUTION MONITORING SYSTEM (EPID L-2022-LLA-0139)

Dear Mr. Coffey:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 272 and 274 to Renewed Facility Operating License Nos. DPR-24 and DPR-27, respectively, for the Point Beach Nuclear Plant, Units 1 and 2 (Point Beach). The amendments consist of changes to the Point Beach technical specifications (TSs) in response to your application dated September 26, 2022.

The amendments revise TS 3.2.4, “Quadrant Power Tilt Ratio (QPTR),” and TS 3.3.1, “Reactor Protection System (RPS) Instrumentation,” to allow the use of an alternate means of determining power distribution information. Specifically, these TS changes would allow the use of a dedicated on-line core power distribution monitoring system (PDMS) to perform surveillance of core thermal limits. The PDMS to be used at Point Beach is the Westinghouse proprietary core analysis system called Best Estimate Analyzer for Core Operations – Nuclear (BEACON™).

A copy of the related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

/RA/

Scott P. Wall, Senior Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosures:
1. Amendment No. 272 to DPR-24
2. Amendment No. 274 to DPR-27
3. Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NEXTERA ENERGY POINT BEACH, LLC

DOCKET NO. 50-266

POINT BEACH NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 272
License No. DPR-24

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by NextEra Energy Point Beach, LLC (the licensee), dated September 26, 2022, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment, and paragraph 4.B of Renewed Facility Operating License No. DPR-24 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 272, are hereby incorporated in the renewed operating license. NextEra Energy Point Beach shall operate the facility in accordance with Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jeffrey A. Whited

Digitally signed by Jeffrey A. Whited
Date: 2023.08.21 14:55:47 -04'00'

Jeffrey A. Whited, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications and Renewed Facility Operating License

Date of issuance: August 21, 2023

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NEXTERA ENERGY POINT BEACH, LLC

DOCKET NO. 50-301

POINT BEACH NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 274
License No. DPR-27

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by NextEra Energy Point Beach, LLC (the licensee), dated September 26, 2022, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment, and paragraph 4.B of Renewed Facility Operating License No. DPR-27 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 274, are hereby incorporated in the renewed operating license. NextEra Energy Point Beach shall operate the facility in accordance with Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jeffrey A. Whited

Digitally signed by Jeffrey A. Whited
Date: 2023.08.21 14:56:10 -04'00'

Jeffrey A. Whited, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications and Renewed Facility Operating License

Date of issuance: August 21, 2023

ATTACHMENT TO LICENSE AMENDMENT NO. 272

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-24

AND LICENSE AMENDMENT NO. 274

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-27

DOCKET NOS. 50-266 AND 50-301

Replace the following pages of Renewed Facility Operating License Nos. DPR-24 and DPR-27 and Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License No. DPR-24

REMOVE	INSERT
-3-	-3-

Renewed Facility Operating License No. DPR-27

REMOVE	INSERT
-3-	-3-

Appendix A, Technical Specifications

REMOVE	INSERT
3.2.4-4	3.2.4-4
3.3.1-9	3.3.1-9
3.3.1-10	3.3.1-10

D. Pursuant to the Act and 10 CFR Parts 30, 40 and 70, NextEra Energy Point Beach to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

E. Pursuant to the Act and 10 CFR Parts 30 and 70, NextEra Energy Point Beach to possess such byproduct and special nuclear materials as may be produced by the operation of the facility, but not to separate such materials retained within the fuel cladding.

4. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Levels

NextEra Energy Point Beach is authorized to operate the facility at reactor core power levels not in excess of 1800 megawatts thermal.

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 272, are hereby incorporated in the renewed operating license. NextEra Energy Point Beach shall operate the facility in accordance with Technical Specifications.

C. Spent Fuel Pool Modification

The licensee is authorized to modify the spent fuel storage pool to increase its storage capacity from 351 to 1502 assemblies as described in licensee's application dated March 21, 1978, as supplemented and amended. In the event that the on-site verification check for poison material in the poison assemblies discloses any missing boron plates, the NRC shall be notified and an on-site test on every poison assembly shall be performed.

C. Pursuant to the Act and 10 CFR Parts 30, 40 and 70, NextEra Energy Point Beach to receive, possess and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed source for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

D. Pursuant to the Act and 10 CFR Parts 30, 40 and 70, NextEra Energy Point Beach to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

E. Pursuant to the Act and 10 CFR Parts 30 and 70, NextEra Energy Point Beach to possess such byproduct and special nuclear materials as may be produced by the operation of the facility, but not to separate such materials retained within the fuel cladding.

4. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Levels

NextEra Energy Point Beach is authorized to operate the facility at reactor core power levels not in excess of 1800 megawatts thermal.

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 274, are hereby incorporated in the renewed operating license. NextEra Energy Point Beach shall operate the facility in accordance with Technical Specifications.

C. Spent Fuel Pool Modification

The licensee is authorized to modify the spent fuel storage pool to increase its storage capacity from 351 to 1502 assemblies as described in licensee's application dated March 21, 1978, as supplemented and amended. In the event that the on-site verification check for poison material in the poison assemblies discloses any missing boron plates, the NRC shall be notified and an on-site test on every poison assembly shall be performed.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	----------NOTES---------- 1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER $\leq$ 75% RTP, the remaining three power range channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance. --- Verify QPTR is within limit by calculation.	In accordance with the Surveillance Frequency Control Program
SR 3.2.4.2	----------NOTE---------- Not required to be performed until 12 hours after input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER > 75% RTP. --- Verify QPTR is within limit using core power distribution information.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.1-1 to determine which SRs apply for each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2	----------NOTES---------- 1. Adjust NIS channel if absolute difference is > 2%. 2. Not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. --- Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3	----------NOTES---------- 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. --- Compare results of core power distribution information to NIS AFD.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	----------NOTE---------- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. ---------- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.5	----------NOTES---------- 1. Not required to be performed for the Source Range Neutron Flux Trip Function until 8 hours after power is below P-6. 2. Not required to be performed for the RCP Breaker Position (Two Loops), Reactor Coolant Flow — Low (Two Loops) and Underfrequency Bus A01 and A02 Trip Functions and the P-6, P-7, P-8, P-9 and P-10 Interlocks. ---------- Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.6	----------NOTE---------- Not required to be performed until 24 hours after THERMAL POWER is $\geq$ 50% RTP. ---------- Calibrate excore channels to agree with core power distribution information.	In accordance with the Surveillance Frequency Control Program

(continued)

UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 272 AND 274 TO

RENEWED FACILITY OPERATING LICENSE NOS. DPR-24 AND DPR-27, RESPECTIVELY

NEXTERA ENERGY POINT BEACH, LLC

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-266 AND 50-301

1.0 INTRODUCTION

By application to the U.S. Nuclear Regulatory Commission (NRC, the Commission) dated September 26, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22270A084), NextEra Energy Point Beach, LLC (the licensee) submitted a license amendment request (LAR) for the Point Beach Nuclear Plant, Units 1 and 2 (Point Beach).

The proposed amendments consist of changes to the Point Beach technical specifications (TSs) that would revise TS 3.2.4, “Quadrant Power Tilt Ratio (QPTR),” and TS 3.3.1, “Reactor Protection System (RPS) Instrumentation,” to allow the use of the Westinghouse Best Estimate Analyzer for Core Operations – Nuclear (BEACON™) power distribution monitoring system (PDMS), as described in topical report WCAP-12472-P-A, “BEACON Core Monitoring and Operations Support System,” to perform power distribution surveillances. The non-proprietary, public version of this topical report is located in ADAMS Legacy Library Accession No. 9409280021. The NRC approved WCAP-12472-P-A on February 16, 1994.

The use of the BEACON™ PDMS would augment the functional capability of the neutron flux mapping system for the purposes of power distribution surveillances at Point Beach. Accordingly, certain TS Required Actions for when a limiting condition for operation (LCO) is not met and certain TS surveillance requirements (SRs) would be changed to refer to core power distribution information or surveillances of the core rather than flux mapping of the current movable incore detectors.

BEACON™ was developed by Westinghouse to improve operational support for pressurized-water reactors (PWRs). It is a core monitoring and support package that uses Westinghouse standard instrumentation in conjunction with an analytical methodology for online generation of three-dimensional power distributions. It provides core monitoring, core measurement reduction, core analysis, and core predictions. Since BEACON™ does not have any direct inputs to the reactor trip system (RTS), BEACON™ will not affect any of the accident analyses in the Point Beach design and licensing bases.

Attachments 4 and 5 to the LAR provide licensee-identified proposed changes to the TS Bases and to the Technical Requirements Manual (TRM). The changes to the TS Bases would be made by the licensee in accordance with TS 5.5.13, "Technical Specifications (TS) Bases Control Program," at the time the amendments are implemented. These changes were reviewed to determine whether the NRC staff had any disagreements with the identified changes based on the proposed amendments. According to title 10 of the *Code of Federal Regulations* (10 CFR) section 50.36, "Technical specifications," paragraph (a)(1), the bases or reasons for TSs shall not become part of the TSs.

2.0 REGULATORY EVALUATION

Section 182a of the Atomic Energy Act of 1954, as amended, requires applicants for nuclear power plant operating licenses to include TSs and such TSs shall be a part of any license issued. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36, which requires that the TSs include items in the following categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls. However, this rule does not specify the particular requirements to be included in a plant's TSs. As stated in 10 CFR 50.36(c)(2)(i), LCOs are "the lowest functional capability or performance levels of equipment required for safe operation of the facility." When an LCO is not met, "the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the [LCO] can be met." The regulations in 10 CFR 50.36(c)(3), "Surveillance requirements," state that SRs are "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the [LCOs] will be met."

As required by 10 CFR 50.36(c)(2)(ii), an LCO must be established for each item meeting one or more of the following criteria:

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4: A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

Those items that do not fall within or satisfy any of the above criteria do not need to be included as LCOs in the TSs.

There are no specific regulatory requirements on PDMSs, such as BEACON™; however, the use of such systems by licensees in monitoring the power distribution in the reactor core during power operation must be consistent with the safe operation of the plant.

3.0 TECHNICAL EVALUATION

3.1 System Description

In-core instrumentation provides information on the neutron flux distribution at selected core locations. From this information, the core power distribution can be determined. The movable incore detector system (MIDS) has movable flux detectors that can traverse the entire length of selected fuel assemblies, thus providing an extremely accurate, three-dimensional map of the neutron flux distribution.

Westinghouse developed BEACON™ to improve operational support for PWRs. It is a core monitoring and support package that uses Westinghouse standard instrumentation in conjunction with an analytical methodology for online generation of three-dimensional power distributions. The system provides the following for the core: monitoring, measurement reduction, analysis, and predictions.

BEACON™ Online Monitor (OLM) adds capability to calculate estimated critical condition, shutdown margin, load swing, and other reactor engineering support functions plus on-line monitoring of core power distribution using core exit thermocouple data with no calculation of online uncertainties.

BEACON™ Technical Specification Monitor (TSM) has all the functions of BEACON™ OLM plus TS monitoring. BEACON™ TSM calculates online dynamic uncertainties based on instrumentation characteristics and time since the last flux map, plus it allows the user to perform power distribution surveillances without taking a flux map using only the available instrumentation. The BEACON™ TSM application of the core PDMS includes the following: (1) essentially continuous monitoring of the core power distribution and (2) flux maps using MIDS only required for BEACON™ calibration.

3.2 Description of Proposed Changes

3.2.1 TS 3.2.4, “Quadrant Power Tilt Ratio (QPTR)”

The current SR 3.2.4.2 states the following:

> Verify QPTR is within limit using the movable incore detectors.

The licensee proposed to revise SR 3.2.4.2 to state the following:

> Verify QPTR is within limit using core power distribution information.

3.2.2 TS 3.3.1, “Reactor Protection System (RPS) Instrumentation”

The current SR 3.3.1.3 states the following:

> Compare results of the incore detector measurements to NIS [Nuclear Instrumentation System] AFD [Axial Flux Difference].

The licensee proposed to revise SR 3.3.1.3 to state the following:

> Compare results of core power distribution information to NIS AFD.

The current SR 3.3.1.6 states the following:

> Calibrate excore channels to agree with incore detector measurements.

The licensee proposed to revise SR 3.3.1.6 to state the following:

> Calibrate excore channels to agree with core power distribution information.

3.2.3 Technical Specification Bases and Technical Requirements Manual

The licensee stated that the TS Bases would be revised for consistency with the proposed TS changes at the time the amendments are implemented. The Bases for TS 3.1.4, “Rod Group Alignment Limits,” TS 3.2.1, “Heat Flux Hot Channel Factor ($F_Q(Z)$),” TS 3.2.2, “Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$),” and TS 3.2.3, “Axial Flux Difference (AFD),” would be revised with respect to references to movable incore detectors and flux maps. The licensee stated that the TS Bases would be updated in accordance with TS 5.5.13.

The licensee also proposed changes to the TRM to specify functionality requirements for BEACON™. The TRM and Technical Requirements Manual Surveillance Requirements (TSRs) are treated as plant procedures. Changes will be made in accordance with 10 CFR 50.59, “Changes, tests, and experiments.”

In lieu of TS requirements, requirements for the PDMS and associated instrumentation will be placed in the TRM. Technical Requirements Manual Limiting Conditions for Operation (TLCOs) and TSRs are treated as plant procedures. Changes will be made in accordance with 10 CFR 50.59. Attachment 5 to the LAR provides the proposed new TLCO 3.2.2, “Power Distribution Monitoring System” as well as an additional clarification note added to TLCO 3.2.1 under TRM 3.2.1, “Movable In-Core Instrumentation.”

3.3 WCAP-12472-P-A

The licensee is proposing changes to the TSs to allow the use of a PDMS at Point Beach. The PDMS would be an enhancement to the Point Beach power distribution measurement and indication capabilities. The core power distribution information that is referred to in the proposed changes to the TSs would be information from the PDMS.

The PDMS to be used at Point Beach is the BEACON™ system developed by Westinghouse to improve the monitoring support by Westinghouse-designed PWRs. The BEACON™ PDMS is a core monitoring and support package, which uses Westinghouse standard instrumentation in conjunction with an analytical methodology for online generation of three-dimensional power

distributions to provide core monitoring, core measurement reduction, core analysis, and core predictions. The BEACON™ PDMS is periodically calibrated by the existing incore detector system.

BEACON™ is described in topical report WCAP-12472-P-A, which was approved by the NRC staff for Westinghouse PWRs by letter dated February 16, 1994, which transmitted the NRC staff's safety evaluation report (SER) on the topical report (section B in WCAP-12472-P-A). The NRC staff's SER endorsed the November 18, 1993, Brookhaven National Laboratory Technical Evaluation Report (TER), "Technical Evaluation of the BEACON Core Monitoring and Operations Support System Topical Report WCAP-12474-P" (attachment to section B in WCAP-12472-P-A). The topical report is subject to the following conditions delineated in section 4.0 of the TER:

1. In the cycle-specific applications of BEACON™, the power peaking uncertainties for average enthalpy rise at rated power ($U_{\Delta H}$) and quadrant tilt (U_Q) must provide 95 percent probability upper tolerance limits at the 95 percent confidence level (section 3.3 of the TER).

2. In order to ensure that the assumptions made in the BEACON™ uncertainty analysis remain valid, the generic uncertainty components may require reevaluation when BEACON™ is applied to plant or core designs that differ sufficiently to have a significant impact on the WCAP-12472-P-A database (section 3.4 of the TER).

3. The BEACON™ Technical Specifications should be revised to include the changes described in section 3 of the TER concerning Specifications 3.1.3.1 and 3.1.3.2, and the Core Operating Limits Report (Section 3.6 of the TER).

The conditions that are related to the power peaking uncertainties and the assumptions made in the BEACON™ PDMS are discussed in detail in section 3.1 of the LAR. For each of the conditions, the licensee has provided a description of how the condition will be met at Point Beach.

3.4 Applicability of Addenda to WCAP-12472-P-A

Subsequent to the approval of WCAP-12472-P-A in 1994, the NRC staff approved four addenda to the topical report. In section 3.2 of the LAR, the licensee provided a discussion with respect to the applicability of the four addenda to the proposed implementation of the BEACON™ PDMS at Point Beach.

Addendum 1

Addendum 1 of WCAP-12472-P-A/WCAP-12473-A, approved by the NRC staff by letter dated September 30, 1999 (ML003678190), describes additional features incorporated into the BEACON™ PDMS:

1. Use of fixed incore self-powered neutron rhodium detectors and
2. Use of three-dimensional advanced nodal codes (ANC) neutronic model code.

In addressing Addendum 1, the licensee stated that the three-dimensional ANC neutronic model code is used for cycle-specific reload design analyses at Point Beach. This portion of Addendum 1 is applicable to Point Beach since it ensures consistency between the reload

design and BEACON models. The NRC staff finds that the licensee's implementation methodology of ANC is acceptable and conforms to the guidance of the NRC-approved addendum.

Addendum 2

Addendum 2 of WCAP-12472-P-A /WCAP-12473-A, approved by the NRC staff by letter dated February 1, 2002 (ML021270086), extends the previously licensed BEACON™ power distribution monitoring methodology to plants containing platinum and vanadium fixed incore self-powered detectors.

In addressing Addendum 2, the licensee stated that Point Beach does not use fixed platinum or vanadium incore detectors and that, therefore, Addendum 2 is not applicable to the LAR. The NRC staff finds that the licensee appropriately considered this addendum and determined it to not be applicable to the proposed implementation.

Addendum 3

Addendum 3 of WCAP-12472-P-A, approved by the NRC staff by letter dated September 26, 2005 (ML052620347), describes an implementation of BEACON™ at Combustion Engineering (CE) plants.

In addressing Addendum 3, the licensee stated that Point Beach is not a CE plant and that, therefore, Addendum 3 is not applicable to the LAR. The NRC staff finds that the licensee appropriately considered this addendum and determined it to not be applicable to the proposed implementation.

Addendum 4

Addendum 4 of WCAP-12472-P-A was approved by the NRC staff by letter dated August 9, 2012 (ML12158A263). In the LAR, the licensee noted that the addendum had the following purposes:

1. Provide the information needed to review and approve the updated thermocouple uncertainty analysis process that will be applied in the BEACON™ on-line core monitoring system.

2. Affirm the continued use of the NRC-approved Westinghouse design model methodology, currently PHOENIX-P/ANC, PARAGON/ANC, and NEXUS/ANC, in the BEACON™ system.

3. Affirm that uncertainties applied to power distribution monitoring using fixed in-core detectors are valid using higher order polynomial fits of the detector variability and fraction of inoperable detectors.

In addressing Addenda 4, the licensee addressed each of its purposes. Regarding the first purpose, the licensee stated the following:

> The updated thermocouple uncertainty evaluation method presented in the [topical report] is based on the licensed methodology in the BEACON topical report but uses the current plant/cycle data in the evaluation process to generate

> cycle-specific uncertainty constants. There are no new methods being developed for the BEACON system; this update is a change in the application of the approved method. Westinghouse stated in the submittal, that this thermocouple uncertainty methodology is only applied to plants with movable in-core detectors. These plants use thermocouples to determine the measured power distribution as described in WCAP-12472-P-A … and the request for additional information (RAI) responses for Addendum 4.

The NRC staff finds this explanation acceptable.

Regarding the second purpose, the licensee is already using PARAGON/ANC and NEXUS/ANC for its cycle-specific reload design analyses for Point Beach. Continuing to use these analytical methodologies with the BEACON™ system will provide for an effective implementation. The NRC staff finds that the design model methodologies currently and proposed to be used are acceptable in accordance with the NRC-approved methodology for implementation of BEACON™ under this addendum.

Regarding the third purpose, Point Beach does not use fixed incore detectors and, therefore, this purpose is not applicable.

3.5 NRC Staff Determination

The NRC staff reviewed the licensee's responses to the three conditions that WCAP-12472-P-A is subject to, as delineated in section 4.0 of the TER, as well as the four addenda to WCAP-12472-P-A, and concludes that the responses are acceptable. The licensee has not proposed changes to the core operating limits report or the core safety limits for Point Beach. The proposed TS changes are to allow the core power distribution to be determined at Point Beach by the BEACON™ system and this will provide equivalent if not enhanced information capability to the reactor operators as compared to the existing movable incore detectors capability alone. Also, as stated by the licensee, and identified in the proposed changes to the TRM in attachment 5 to the LAR, the BEACON™ PDMS is not required to be operable below 25-percent rated thermal power (RTP) but is required to be operable at all other times in MODE 1, when used for the SRs described in the requested TS changes. Furthermore, Required Action A.1 associated with TRM TLCO 3.2.2 at Point Beach requires that the use of the PDMS be suspended immediately when RTP is below 25 percent. This is because the accuracy of the calculated core power distribution may not be bounded by the uncertainties in WCAP-12472-P-A at these reduced power levels. Based on this TLCO, and on the discussion provided above, the NRC staff concludes that the licensee has provided an acceptable disposition of the WCAP-12472-P-A conditions and addenda, and that, therefore, the use of the BEACON™ system described in WCAP-12472-P-A at Point Beach is acceptable.

In the LAR, the licensee outlined a process to use BEACON™ to augment the functional capability of its core flux mapping system for the purpose of power distribution surveillances. Although WCAP-12472-P-A discusses an application of BEACON™ in which there is continuous flux monitoring by control room operators, the licensee is proposing a more conservative application of BEACON™ in which the core power distribution limits themselves remain unchanged. The licensee intends to use the BEACON™ PDMS as the primary method for performing power distribution surveillances, and to use the existing movable in-core detectors as an alternative.

In the LAR, the licensee addressed whether the BEACON™ PDMS needed to have an LCO added to the TSs to state that the system is required to be operable. The licensee concluded that an LCO for the PDMS was not required, because it did not meet the criteria set forth in 10 CFR 50.36(c)(2)(ii). The PDMS instrumentation provides the capability to monitor core parameters at more frequent intervals than is currently required by the TSs. The PDMS combines inputs from currently installed plant instrumentation and design data for each fuel cycle. The addition of PDMS does not modify or eliminate existing plant instrumentation. It provides a continuous means to monitor the power distribution limits including limiting peaking factors and QPTR. The PDMS is used for periodic measurement of the core power distribution to confirm operation within design limits, and for periodic calibration of the ex-core detectors, and it does not initiate any automatic protection action. The PDMS instrumentation does not change any of the key safety parameter limits or levels of margin as considered in the reference design basis evaluations. These limits are not revised by the proposed amendments and can continue to be determined independently of the operability of the PDMS. Based on these considerations, the NRC staff also determined that the PDMS itself does not meet any of the 10 CFR 50.36(c)(2)(ii) criteria for inclusion in the TS. Therefore, the NRC staff concludes that 10 CFR 50.36 does not require the PDMS to have its own LCO in the TSs and instead it may be monitored via the associated TRM technical requirements. The TRM is maintained by the licensee in accordance with 10 CFR 50.59.

Based on its review of the proposed changes to TS 3.2.4 and TS 3.3.1 identified in section 3.2 of this SE, the NRC staff concludes that replacing the current TS references to movable incore detectors with references to core power distribution information (from either the MIDS or the BEACON™ system) is consistent with the technical requirements of the NRC-approved WCAP-12472-P-A. Based on the above, the NRC staff further concludes that the proposed changes meet the requirements of 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3) because when the LCOs are not met, the remedial actions will continue to provide an acceptable alternative to shutting down the reactor and because the SRs will continue to provide assurance that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. Therefore, the NRC staff concludes that the proposed amendments are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission’s regulations, on June 8, 2023, the Wisconsin State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR part 20 or change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding in the *Federal Register* on November 29, 2022 (87 FR 73339) that the amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date of issuance: August 21, 2023

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 272 AND 274 REGARDING REVISION TO USE BEACON POWER DISTRIBUTION MONITORING SYSTEM (EPID L-2022-LLA-0139) DATED AUGUST 21, 2023

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