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PNP 2019-015

10 CFR 50.71(e)
10 CFR 50.4(b)(6)

May 23, 2019

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Final Safety Analysis Report Update – Revision 34

Palisades Nuclear Plant
NRC Docket 50-255
Renewed Facility Operating License No. DPR-20

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) Sections 50.71(e) and 50.4(b)(6), Entergy Nuclear Operations, Inc. (Entergy) is providing the Palisades Nuclear Plant (PNP) Final Safety Analysis Report (FSAR) update, Revision 34.

This FSAR update is provided in its entirety on the CD-ROMs in the enclosures. Revision 34 changes, with the exception of typographical corrections and format changes, are denoted by vertical lines in the outboard margins of the text. All changes, other than those involving any typographical corrections, format changes, and removed information, were made under the provisions of 10 CFR 50 or in accordance with safety evaluations received from the Nuclear Regulatory Commission (NRC). The FSAR update incorporates changes made to the facility or to the procedures described in the FSAR, and all other applicable information and analyses submitted to the NRC or prepared pursuant to NRC requirements, up to the end of the PNP 1R26 refueling outage on December 27, 2018.

Enclosure 1 contains a list of changes made in the FSAR revision. One of the changes was made under the provisions of 10 CFR 50.59, "Changes, tests, and experiments," and was not previously submitted to the NRC (see Log No. 16-017 in the attachment).

For this FSAR update, no information has been removed in accordance with Appendix A to Nuclear Energy Institute (NEI) 98-03, Revision 1, "Guidelines for Updating Final Safety Analysis Reports," as endorsed by Regulatory Guide 1.181, "Content of the Updated Final Safety Analysis Report in Accordance with 10 CFR 50.71(e)."

Enclosure 2 contains a public version of the updated FSAR (Revision 34), with certain information redacted in accordance with NRC Regulatory Issue Summary (RIS) 2015-17, "Review and Submission of Updates to Final Safety Analysis Reports, Emergency Preparedness Documents, and Fire Protection Documents."

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Enclosure 3 contains a non-public version (non-redacted) of the updated FSAR (Revision 34). This enclosure contains security-related information, and Entergy requests that this enclosure be withheld from public disclosure under 10 CFR 2.390, "Public inspections, exemptions, and requests for withholding," paragraph (d)(1).

This letter contains no new regulatory commitments.

If there are any questions concerning this letter, or additional information is required, please contact Jeff Erickson at 269-764-2375.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 23, 2019.

Respectfully,

A handwritten signature in black ink, appearing to read "C. Arnone", with a long horizontal flourish extending to the right.

Charles F. Arnone

CFA/jse

- Enclosure 1: Palisades Nuclear Plant Final Safety Analysis Report (FSAR) Revision 34 List of Changes
 - Enclosure 2: CD-ROM Containing Final Safety Analysis Report – Revision 34 (Public Version)
 - Enclosure 3: CD-ROM Containing Final Safety Analysis Report – Revision 34 (Non-Public Version) (Security-Related Information, Withhold Under 10 CFR 2.390)
- cc: Administrator, Region III, USNRC (w/o Enclosure 2)
Project Manager, Palisades, USNRC (w/o Enclosures 2 and 3)
Resident Inspector, Palisades USNRC (w/o Enclosure 2)

ENCLOSURE 1

PNP 2019-015

PALISADES NUCLEAR PLANT

FINAL SAFETY ANALYSIS REPORT (FSAR) REVISION 34

LIST OF CHANGES

9 pages follow

Palisades Nuclear Plant
 Final Safety Analysis Report (FSAR) Revision 34 List of Changes

Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
12-036	Sections 2.5.2.3 and 7.6.2.5, and Figure 7-61	<p>Engineering Change (EC) 38050 made changes to the plant process computer (PPC) to meet new requirements for critical digital assets. The FSAR sections were changed to describe how the emergency response data-link system now works and to note use of a data diode for cyber isolation. Also, Figure 7-61 was updated with a new block diagram to show the PPC system. Lastly, EC38052 installed a meteorological tower isolation device that required changing the meteorological data collection method from digital and analog recorders to digital recording devices.</p> <p>These changes were associated with Amendment No. 243, which approved the cyber security plan. This amendment was issued on July 28, 2011 (ADAMS Accession Number ML111801243).</p>
14-021	Figures 7-14 sheet 11 and 8-3 sheet 1	<p>These figures were revised per EC52918 to add the open phase detection system to the figures containing the start-up transformer 1-2 protection logic and single line diagram. In addition, editorial corrections are made to Figure 7-14 sheet 11.</p>
15-013	Figure 10-3, sheet 1	<p>The figure was revised under EC56030 to correct the size of steam generator blowdown valves MV-MS107 and MV-MS108. They should be 1½-inch valves rather than 2-inch valves.</p>

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
16-017	Sections 1.5, 7.4.3, 9.7, and 9.8.2.4, and 9.12.3.3, Chapters 1 and 9 References, Figures 8-5 sheet 2, 9-12 sheets 1 and 2, and 9-14 sheet 10, and Tables 5.2-2, 5.2-3, 9-10, 9-12, and 9-21	<p>These changes reflected EC55441, which installed a non-safety related, diesel-driven auxiliary feedwater (AFW) pump P-8D, along with a cross-connection between the condensate storage tank and the demineralized water storage tank, as part of the site transition to a risk-informed, performance-based fire protection program per Amendment No. 254. This amendment is documented in NRC letter, "Palisades Nuclear Plant - Issuance of Amendment Regarding Transition to Risk-Informed, Performance-Based Fire Protection Program in Accordance with 10 CFR 50.48(c)," dated February 27, 2015 (ADAMS Accession No. ML15007A191).</p> <p>Portions of this EC were changes that were reviewed under the provisions of 10 CFR 50.59 but have not previously been submitted to the NRC. The 10 CFR 50.59(c)(2) review concluded that sufficient AFW flow will continue to be available during anticipated operational occurrences and accident conditions. As a result, the AFW system will continue to perform as intended, such that the proposed change does not affect the radiological consequences of an accident previously evaluated in the FSAR or of a malfunction of an SSC important to safety previously evaluated in the FSAR. The changes to the design of the AFW system and the means of ensuring adequate water supply from the condensate system to support the AFW design function do not introduce any new types of accidents.</p>
16-025	Sections 1.2.2, 1.5, and 10.2.4.1, Figures 8-5 sheets 1 and 3, 9-11 sheet 3, and 10-6, and Tables 5.2-2 and 10-4	<p>EC61195 replaced cooling tower E-30B with an 18-cell SPX Marley cooling tower similar in design to cooling tower E-30A, which was replaced previously. The new E-30B is constructed of fiber reinforced plastic, which allows for the removal of the existing fire deluge system, as Nuclear Electric Insurance Limited considers this material acceptable for use without water-based protection. Other changes associated with the cooling tower replacement include removing a personnel shelter, relocating an oil collection building, and demolishing three deluge equipment buildings. The FSAR changes revise sections, figures, and tables to reflect the new cooling tower.</p>

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
16-030	Figure 8-1 sheet 2	<p>EC61200 is one of several modifications in support of the E-30B cooling tower replacement. The activities performed under EC61200 include removal of main components from the existing structure; demolition of the existing structure, and installation of a new concrete pad, building, oil collection tank, lighting, and receptacles directly across the road from the current location.</p>
16-040	<p>Sections 8.4.2.4 and 9.10, Figures 8-12 and 9-18 sheet 1B, and Tables 5.2-4 and 5.2-5</p>	<p>Under EC56667 and EC56669, a dedicated 125 VDC battery supply was installed to power alternate controls for the letdown orifice stop valves, the primary coolant pump trips, and the charging pump trips in the event that a fire renders the normal control capabilities unavailable. In addition, EC55509 installed new manually operated control switches in the control room that allow switching to the alternate power source for the chemical and volume control system letdown orifice stop valves due to postulated fire scenarios that could cause spurious opening or closing of the stop valves</p> <p>These ECs were part of the site transition to a risk-informed, performance-based fire protection program per Amendment No. 254. This amendment is documented in NRC letter, "Palisades Nuclear Plant - Issuance of Amendment Regarding Transition to Risk-Informed, Performance-Based Fire Protection Program in Accordance with 10 CFR 50.48(c)," dated February 27, 2015 (ADAMS Accession No. ML15007A191).</p>

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
16-041	Section 4.3.5	<p>This section was updated per EC56667, which installed additional control capability to allow the control room operators to trip the primary coolant pumps in the event that a fire renders the normal trip capability unavailable. This modification is associated with site's transition to a risk-informed performance-based fire protection program (i.e., NFPA-805) in accordance with Amendment No. 254, "Palisades Nuclear Plant – Issuance of Amendment Regarding Transition to a Risk-Informed, Performance-Based Fire Protection Program in Accordance with 10 CFR 50.48(c)," dated February 27, 2015 (ADAMS Accession No. ML15007A191).</p>
16-050	Figure 8-7 sheet 2	<p>The figure was updated due to EC58240, which installed new fuses, breakers, cables to ensure circuit coordination for 120 VAC panel EY-01 in a postulated fire scenario. This modification is associated with site's transition to a risk-informed performance-based fire protection program (i.e., NFPA-805) in accordance with Amendment No. 254, "Palisades Nuclear Plant – Issuance of Amendment Regarding Transition to a Risk-Informed, Performance-Based Fire Protection Program in Accordance with 10 CFR 50.48(c)," dated February 27, 2015 (ADAMS Accession No. ML15007A191).</p>
17-001	Figure 8-1 sheet 1	<p>EC66324 installed a load bank for supplemental diesel generator 1-3. Due to limited connection points on the output of the diesel generator 1-3 output breaker, a transfer switch was also installed to supply either the existing transformer X-994 or the new load bank.</p>
17-021	Figure 9-13	<p>The equipment identification number for an existing wye strainer was replaced with a new number (YS-0595) under EC73181 since the same identification number was used on two different wye strainers.</p>

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
17-023	Figure 11-2 sheet 2B	This figure change corrected the equipment identification number for a manual valve in the radwaste system. The valve should be MV-DMW704 rather than MV-DRW704 (EC73527).
17-024	Figure 9-2	A note was added to Figure 9-2 that describes an approved realignment of the shield cooling system as a compensatory measure to establish an equivalent full coil set in the event that portions of both coil sets are exhibiting non-serviceable leakage (EC73375).
17-026	Sections 9.1.2.1, 9.1.2.3.3, and 9.5.1.2, Figures 9-1 sheet 1, 9-1 sheet 1A, and 9-9 sheet 1, and Table 9-1	These changes reflected service water piping and components that have been abandoned in place under EC73072 due to the replacement of the service water cooled instrument air compressors with air cooled compressors.
17-029	Sections 9.2.1 and 9.2.2.3, and Table 1-2	The discussion concerning design limits for the shield cooling system was clarified, and the shield cooling pump flow rate in Table 1-2 was revised to align with Table 9-3, which has the correct value. A previous FSAR change concerning the shield cooling system mistakenly did not revise Table 1-2 when Table 9-3 was updated (condition report CR-PLP-2017-04422).
17-031	Sections 9.11.3.2 and 11.4.2.2	The sections were revised to describe items stored in the spent fuel pool, such as control rods, incore instruments, and solid radiological waste materials, before they are shipped offsite per CR-PLP-2017-04250.
17-032	Figure 9-9 sheet 1	The figure was corrected to align with the as-built configuration for the vent and inlet lines on DT-1223, "Air Line FW Purity Crosstie Drain Trap," per EC74749 (CR-PLP-2017-04634).
17-033	Section 9.4.2.1	A statement was added that a floating filter is periodically used in the spent fuel pool to improve water clarity (CR-PLP-2017-04995).

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
17-034	Section 9.10.5	This change to Section 9.10.5 clarified that only certain chemical and volume control system (CVCS) valves require operability testing in accordance with the ASME Code, and none of the CVCS pumps require Code operability testing. Only certain valves and none of the pumps are within the ASME Code boundaries of the CVCS.
17-035	Sections 8.5.1.2 and 8.5.3, and Chapter 8 References	Under EC75251, Sections 8.5.1.2 and 8.5.3 and the Chapter 8 References were revised to reflect NRC acceptance of the containment electrical penetrations' design based on review of Systematic Evaluation Program Topic VIII-4 as documented (1) in the Integrated Plant Safety Assessment Report (IPSAR) Section 4.26, Electrical Penetrations of Reactor Containment – Palisades Plant, dated June 10, 1983, (2) in NUREG-0820 Supplement 1, Integrated Plant Safety Assessment Systematic Evaluation Program, Palisades Plant, dated November 1983, and (3) in the unresolved item from the 2014 NRC Component Design Bases Inspection which was closed in NRC letter, "Palisades Nuclear Plant – NRC Integrated Inspection Report and Exercise of Enforcement Discretion 05000255/10170002," dated August 8, 2017 (ADAMS Accession No. ML17220A349).
18-001	Section 8.3.5.2, Figures 8-7 sheet 2 and 8-8, and Table 8-5	EC64020 replaced the existing panel ED-21-1, ED-21-2, and ED-21A circuit breakers with fused disconnect devices as part of the site's transition to a risk-informed performance-based fire protection licensing program (i.e., NFPA-805) in accordance with Amendment No. 254, "Palisades Nuclear Plant – Issuance of Amendment Regarding Transition to a Risk-Informed, Performance-Based Fire Protection Program in Accordance with 10 CFR 50.48(c)," dated February 27, 2015 (ADAMS Accession No. ML15007A191).

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
18-002	Figures 6-5 sheet 1 and 9-1 sheet 1B	EC75510 added a pipe stub and cap to match the as-built configuration of the plant in Figure 9-1 sheet 1B (coordinate D-4), and revised the pipe cap from screwed to welded on the 6-inch pipe stub for penetration 13 on Figure 6-5 sheet 1.
18-005	Figure 8-7 sheet 1	EC74583 installed fuses in ammeter circuits used for battery load monitoring to eliminate the risk of a secondary fire in a separate fire area. The ammeter circuits are shown on Figure 8-7 sheet 1.
18-007	Figure 8-7 sheet 1	This figure was revised to reflect that fuses were installed under EC74585 in the station battery ammeter EAI-68 in order to reduce the risk of a secondary fire in the cable spreading room (CR-PLP-2013-04817).
18-008	Sections 5.3.2.1 and 5.8.6.2.1	These sections contained erroneous references to other sections for tornado missile information. Section 5.3.2.1 was revised to reference Section 5.5.1.1.2 for descriptions of tornado missiles rather than Section 5.5.1.1.4, and Section 5.8.6.2.1 was revised to reference Section 5.5.1.1.5 for an equipment hatch discussion rather than Section 5.5.1.1.1.
18-009	Chapter 1 References	References 45 and 47 were updated to reflect current industry chemistry guidelines.
18-010	Figure 9-12 sheet 1	This figure was revised under EC75971 to reflect the current plant configuration, in which auxiliary feedwater system manual valve MV-FW764 is the inboard drain valve and MV-FW764A is the outboard drain valve, with a pipe cap.
18-014	Section 9.11.5 and the Chapter 9 References	Section 9.11.5 was revised to discuss renewal of the dry fuel storage cask VSC-24 license, and Chapter 9 References 82 and 83 were added for the revised VSC-24 certificate of compliance and safety analysis report for the renewed license.

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
18-016	Figure 9-2	A note was added to Figure 9-2 under EC73987 that references an approved repair method for the shield cooling system coils.
18-018	Figure 9-11 sheet 1	The figure was revised under base EC76587 (and child ECs 76588 and 76589) to reflect installation of additional isolation valves in the fuel supply, return, and vent lines for diesel driven fire pump engines K-5 and K-10. The additional isolation valves were installed to prevent fuel oil from entering the lube oil crank case in each of the engines.
18-021	Section 9.8.5.2	Section 9.8.5.2, Item 3, was revised to reflect the capacity of the new feedwater purity building air compressors that were installed under EC63597.
18-022	Figure 1-12 sheet 1, Figure 7-25, Figure 8-6 sheet 3, and Figure 9-11 sheet 1	An equipment label was corrected on each of these figures under EC79676, EC80876, EC78478, and EC78792, respectively.
18-023	Section 9.6.1 and Table 5.2-3	The section and table were revised to clarify which portions of the fire protection system are designed as Consumers Design Class 2 versus Consumers Class 3 within site stress package documentation.
18-024	Sections 1.3, 1.4.2, 3.1, 3.3.1, 3.3.2.7, 3.3.4.3, 14.1.1, 14.14.2.1, 14.17.1.1, 14.17.1.2.2, 14.17.1.4, and 14.17.2.2.1, Tables 1-2, 3-2, 4-15, 14.1-4, 14.1-5, 14.17.1-2, and 14.17.1-5, and the references for Chapter 3 and Sections 14.1, 14.16, and 14.17	The sections, tables, and reference lists were revised for fuel and core reload design changes in fuel cycle 27 as described within EC75056, "Palisades Cycle 27 Reload Core Design Evaluation," and EC80176, "EC to Issue Calculation EA-PID-18-01, <i>Cycle 27 PIDAL-3 Model & Cycle 26 Uncertainty Analysis.</i> "

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Log No.	Affected FSAR Sections, Figures, and Tables	Description of Change
18-026	Sections 4.3.3 and 4.5.6, and Table 4-15	EC80413 modified control rod drive mechanism nozzles 25, 33, and 36 due to indications found during the 2018 refueling outage, in accordance with relief request RR 5-7, which was verbally authorized by the NRC on December 4, 2018, as documented in NRC letter dated December 6, 2018 (ADAMS Accession No. ML18340A007). The FSAR sections and table were revised to reflect the nozzle modifications.
18-027	Figure 9-1 sheet 1A	Globe and gate valves were replaced with ball valves in the component cooling heat exchanger vent and drain lines under EC80437 because the valves were either becoming difficult to operate or had developed leak-by paths.
18-029	Sections 2.6, 11.2.3.1, and 11.3.3	These changes corrected outdated FSAR references to sections within the Offsite Dose Calculation Manual.
18-030	Figure 9-13	A note was added to the figure stating that EC80465 removed the last stage of rotor blades from each of the main feedwater pump turbine drivers.
18-031	Section 14.18.2.2.1	This change revised the containment response analysis summary to state that auxiliary feedwater flow to the steam generator is 200 gpm rather than 165 gpm to reflect the latest version of the analysis.
19-005	Section 7 Appendix 7C	An instrument tag number was corrected in the appendix (CR-PLP-2019-00905).

ENCLOSURE 2

PNP 2019-015

CD-ROM CONTAINING FINAL SAFETY ANALYSIS REPORT – REVISION 34

(PUBLIC VERSION)

1 CD-ROM Enclosed

ENCLOSURE 3

PNP 2019-015

CD-ROM CONTAINING FINAL SAFETY ANALYSIS REPORT – REVISION 34

(NON-PUBLIC VERSION)

(SECURITY-RELATED INFORMATION, WITHHOLD UNDER 10 CFR 2.390)

1 CD-ROM Enclosed