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PNP 2017-048

October 19, 2017

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

SUBJECT: Final Safety Analysis Report Update – Revision 33

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

Dear Sir or Madam:

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. (ENO) is providing the Palisades Nuclear Plant (PNP) Final Safety Analysis Report (FSAR) update, Revision 33.

This FSAR update is provided in its entirety on the CD-ROM in the enclosure. Revision 33 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 six months prior to the date of this submittal.

For this FSAR update, no excessive detail, obsolete information, or redundant 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)."

The attachment contains a list of changes made in the FSAR revision. Since the previous FSAR update submittal, no changes have been made under the provisions of 10 CFR 50.59 not previously submitted to the NRC.

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NRR

Enclosure 1 contains a public version of the updated FSAR (Revision 33), 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."

Enclosure 2 contains a non-public version (non-redacted) of the updated FSAR (Revision 33). This enclosure contains security-related information, and ENO 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 identifies no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 19, 2017.

Sincerely,



CFA/jse

Attachment: Palisades Nuclear Plant Final Safety Analysis Report (FSAR)
Revision 33 List of Changes

Enclosure 1: CD-ROM Containing Final Safety Analysis Report – Revision 33 (Public Version)

Enclosure 2: CD-ROM Containing Final Safety Analysis Report – Revision 33 (Non-Public Version) (Security-Related Information, Withhold Under 10 CFR 2.390)

cc: Administrator, Region III, USNRC (w/o Enclosure 1)
Project Manager, Palisades, USNRC
Resident Inspector, Palisades USNRC (w/o Enclosure 1)

ATTACHMENT

PALISADES NUCLEAR PLANT

FINAL SAFETY ANALYSIS REPORT (FSAR) REVISION 33

LIST OF CHANGES

7 pages follow

**Palisades Nuclear Plant
Final Safety Analysis Report (FSAR) Revision 33 List of Changes**

Log No.	Affected FSAR Sections, Tables, and Figures	Description of Change
14-002	Table 5.6-4 and Section 5.6 References	Table 5.6-4, "Summary of Eliminated Hardware Resulting from Application of Generic Letter 87-11, 'Relaxation of Arbitrary Pipe Rupture Requirements,'" was revised to add that arbitrary intermediate pipe ruptures on the main steam system inside containment are not required to be postulated per Engineering Change (EC) 48479, in accordance with Generic Letter 87-11, "Relaxation in Arbitrary Intermediate Pipe Rupture Requirements." This EC was added to the list of Section 5.6 references.
14-005	Sections 9.11.4 and 9.11.5, and Chapter 9 References	This update reflected the site adding the Holtec HI-STORM FW dry fuel cask storage system under EC42425.
15-0026	Section 8.3, and Figures 2-2 and 8-2	The changes to the section and figures were due to the switchyard upgrade under EC59844, in which power lines between Palisades and the Benton Harbor and Cook substations were rerouted.
15-0029	Appendix 7C	Appendix 7C, "Regulatory Guide 1.97 Rev. 3 Parameter Summary Table," was updated with regard to boric acid charging flow transmitter FT-0212 being the designated Regulatory Guide 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants," component rather than boric acid charging flow indicating transmitter FIT-0212A.
16-0005	Table 4-16	As part of an effort to reduce site collective radiation exposure, the zinc concentration upper limit in the primary coolant system was changed from 10 ppb to 20 ppb under EC62105, which required a change to Table 4-16, "Primary Coolant Chemistry."

16-0007	Figure 9-7 sheet 3	The figure was corrected to reflect that the flow indicator FI-0971 inlet valve, MV-CC159, is a one-inch, rather than 1-1/2 inch, valve; and the FI-0972 and FI-0973 outlet valves, MV-CC162 and MV-CC164, are 1-1/2 inch rather than one-inch valves. This discrepancy was discovered while preparing EC62490.
16-0019	Sections 4.3.9.4 and 6.9.2, and Table 6-13	Sections 4.3.9.4 and 6.9.2, and Table 6-13 were revised due to the 10-year code update from the ASME OM Code 2001 Edition through 2003 Addenda to the 2004 Edition through the 2006 Addenda.
16-0023	Section 9.3.2.3	To add clarity, Section 9.3.2.3 was updated to indicate that, upon a safety injection signal with a diesel generator start due to a loss of offsite power, component cooling water (CCW) pump P-52C is sequenced to standby and starts upon CCW system low pressure.
16-0027	Section 6.2.3.1	This section was revised to clarify that the containment spray pump motor drivers have been selected to be "acceptable," rather than "nonoverloading," over their entire pump operating range, per condition report CR-PLP-2016-01646.
16-0028	Table 9-9	Table 9-9, "Effect of Loss of Air to Air-Operated Valves," was revised to remove the closed safety function for CV-3006, "Shutdown Cooling Heat Exchangers E-60A/B Bypass (MZ-13)," and the open safety functions for CV-3025, "SDC Heat Exchangers E-60A/B Outlet (MZ-32)," and CV-3055 "Shutdown Cooling Inlet to Shutdown Heat Exchanger." When the plant is on shutdown cooling, these valve functions are not required to be safety functions because Palisades was licensed as a hot shutdown plant (i.e., the original design did not require the ability to achieve cold shutdown conditions), and equipment used to get from hot shutdown to cold shutdown may be nonsafety-related per FSAR Section 1.8.10, "Safe Shutdown."
16-0031	Table 5.3-1	Table 5.3-1, "Tornado Design Pressures," was corrected by reinstating an exponent that was missing in the first two wall pressure design equations (for the Class 1 portion of the auxiliary building and the auxiliary building radwaste addition). In addition, the wall pressure design equation for the technical support center/electrical equipment room/heating, ventilation, and air conditioning auxiliary building addition was corrected. These discrepancies were documented in condition report CR-PLP-2016-01540.

16-0032	Sections 9.5.1.4 and 9.5.4, and Table 9-8	These changes reflected replacement of the feedwater purity (FWP) building compressor under EC63597. The existing FWP building air compressors, C- 903A/B, were replaced with new oil-free air-cooled FWP air compressors, C-912A/B. The new compressors were sized to provide instrument grade air to meet both the FWP air system demands as well as station instrument and service air system demands simultaneously.
16-0036	Figure 8-3, sheets 1 and 2	EC64591 eliminated unnecessary nuisance trips from unreliable sudden pressure relays on the eight large site power transformers. Figure 8-3, sheets 1 and 2, were affected by the change.
16-0043	Table 14.1-5 and Section 14.1 References	In Table 14.1-5, "Cycle 25 Summary of Results for Standard Review Plan Chapter 15 Events," the percent fuel failures predicted for a control rod ejection event due to minimum departure from nucleate boiling (DNB) ratio exceedance was changed due to an error discovered in the supporting statistical departure from nucleate boiling analysis performed by the fuel vendor. The referenced cycle 25 safety analysis report was also revised to reflect the correction. This error was documented in EC64916 and in condition report CR-PLP-2016-01167.
16-0045	Section 14.14.2.2	Typographical errors were corrected in the description of the evaluated cases for the main steam line break event. This error was documented in condition report CR-PLP-2016-03632.
16-0046	Table 14.1-6	The control room doses from a steam line break, a control rod ejection event, and the maximum hypothetical accident were updated in the table to reflect a reduction in thickness in the west wall of track alley, which is shared with the control room, as evaluated in EC63472, "Revise NAI-1149-024, Determination of Direct Shine Doses for a Design Basis LOCA for Palisades, to Accommodate Track Alley West Wall Modification for DFS."
16-049	Section 11.4.2.2	This section was revised to delete discussions of radioactive waste equipment that has been removed from the site. The removed equipment consisted of the B-400 Supercompactor, which was once used for compressing dry active wastes, and the separate HEPA-ventilated room, which was once used for dismantling large components.

16-051	Sections 5.6, 6.7, and 9.3, Tables 5.8-4, 6-14, and 9-9, Figures 6-5 sheet 1 and 9-7 sheet 1, Chapter 6 References, and Appendix 7C	These changes reflected installation of an air accumulator for component cooling water (CCW) control valve CV-0910 under EC63832 to allow the valve to be credited as a containment isolation valve. The EC also reclassified CCW containment penetrations MZ-14 and MZ-15 and added test connections with caps at these penetrations to satisfy leak rate test requirements.
16-052	Table 5.2-3	Table 5.2-3, "Mechanical System/Component Classification," was revised by removing a description of the air supply to the atmospheric dump valves (ADV). The ADV air supply is part of the instrument air system and is non-safety related, like the remainder of the instrument air system which is also described in the table. Therefore, the air supply to the ADVs shouldn't have a table entry separate from the instrument air system and can be deleted from the table.
16-053	Figure 10-2	This figure was revised by adding a note for feedwater heater E-6A and E-6B level control valves CV-0601 and CV-0605 to indicate that the valves will be normally operated with 50% valve blocks installed. The 50% blocks will prevent the valves from going less than 50% open during normal operations for single point vulnerability (and subsequent system transient) mitigation.
17-002	Figure 9-11 sheet 2	A detail was added to the drawing to include existing components of the station power transformer 1-3 deluge system per EC68959.
17-003	Section 6.10.3	An editorial correction was made to the section to clarify that the release rates used for the evaluation of control room envelope radiological habitability following the maximum hypothetical accident are based on core inventory release fractions in Regulatory Guide 1.183, "Alternative Radiological Source Terms For Evaluating Design Basis Accidents at Nuclear Power Reactors."
17-004	Section 12.2	The section was revised to reflect that plant access training and radiation worker training was changed from annually to every 24 months for supplemental employees and every 48 months for utility employees. This was part of an industry effort to standardize training required for in-processing by using common nuclear plant access training modules for utility and supplemental workers.

17-004-1	Section 11.5.3 and Figure 11-6	The FSAR was revised due to replacement of radioactive gaseous effluent monitoring system components under EC58711. The replaced components were obsolete and prone to failure, and replacement parts were difficult to obtain.
17-005	Table 8-5	In Table 8-5, "DC and Preferred AC Systems Ratings and Construction of Components," the identification number of a panel was corrected. It should be "D-21A" instead of "D-11B" per condition report CR-PLP-2016-04910.
17-005-1	Section 5.5.1.1.4 and Section 5.5 References	The description of the steel plate barrier around the condensate tank was corrected, and the number and title of the referenced calculation was corrected (EC69844).
17-007	Figure 12-1	Figure 12-1, "Palisades Nuclear Plant Organization," was revised to remove Regulatory Assurance as a group reporting to the Director of Regulatory and Performance Improvement at the site. The Palisades Regulatory Assurance group now reports to the fleet Director of Regulatory Assurance rather than the Director of Regulatory and Performance Improvement.
17-008	Figures 6-2 sheet 1 and 10-6	The figures were corrected under EC70346 to reflect the appropriate designation for motor operated valves MO-3015 and MO-3016 per condition report CR-PLP-2017-00082, and the actual location of the 42-inch isolation valves for the main cooling water header for cooling tower "A" per condition report CR-PLP-2016-02329.
17-009	Sections 3.1, 14.1, and 14.13, Figures 14.13-1 through 14.13-28, Tables 14.1-5, 14.13-1, 14.13-2, 14.13-3, 14.13-4, and 14.13-5, and References in Sections 14.1, 14.13, and 14.16	These changes reflected the cycle 26 core reload package under EC62218. The cycle 26 reload package documented changes in nuclear, thermal hydraulic, and mechanical design of the reactor core. The reload package provided the bases for the startup testing and operation of the cycle 26 fuel cycle design, and was based on the results of safety analyses performed by AREVA.
17-010	FSAR Section 5.5	Tornado missile design requirements were revised to align with the site licensing and design bases. As documented in condition report CR-PLP-2016-02392, this revision corrects discrepancies that were created when information from the original FSAR was incorporated into the updated FSAR in the early 1980s.

17-014	Section 9.11.3.4	The section was revised to state that the site has chosen to comply with 10 CFR 50.68(b), as required by 10 CFR 50.68, "Criticality Accident Requirements" (ref: condition report CR-PLP-2017-00746).
17-015	Table 5.5-1	The table was revised to reflect that a portion of the wall thickness for the "Auxiliary Building TSC/EER/HVAC Addition" was removed and replaced with an equivalent steel plate under EC59170. This wall was modified to accommodate a flatbed truck used to transport loaded dry fuel storage casks to the cask storage pad.
17-022	Section 9.11.4.3 and Table 9-20	These changes reflect two fuel pool crane temporary modifications that will be installed throughout the next required periodic FSAR update cycle per Section 8 of NEI 98-03, "Guidelines for Updating Final Safety Analysis Reports." The temporary modifications (TM-2003-028 and EC35577) allow multi-directional movement of the crane, and increase the speed of the crane bridge and trolley, and are installed only when the crane is operated in a non-single failure proof manner.

17-025	<p>Figures 11-1 sheet 1C, 7-14 sheets 1, 11, and 12, 8-5 sheets 2 and 3, 9-11 sheet 3, and 9-18 sheet 1B</p>	<p>Miscellaneous figures were updated to reflect modifications installed under the following Engineering Changes (ECs):</p> <p>EC65795 – Revised Figure 11-1, sheet 1C, to reflect a temporary modification that would install a jumper to bypass a radiological waste system valve interlock, allowing a radiological waste discharge valve to open without a dilution water pump in service.</p> <p>EC64591 – Revised Figure 7-14, sheets 1, 11, and 12 to reflect disconnection of trip circuits for sudden pressure relays on power transformers to eliminate a vulnerability to nuisance trips due to the unreliable relays.</p> <p>EC63597 – Revised Figure 8-5, sheet 2, due to replacement of the feedwater purity building air compressors.</p> <p>EC48601 - Revised Figure 8-5, sheet 3, to reflect replacement of cooling tower load centers.</p> <p>EC61199 – Revised Figure 9-11, sheet 3, due to relocated equipment and removal of a personnel shelter to support cooling tower E-30B replacement.</p> <p>EC57965 – Revised Figure 9-18, sheet 1B, due to replacement of a chemical and volume control system flow transmitter.</p> <p>Condition report CR-PLP-2017-03736 documented that the referenced ECs did not properly identify the revised FSAR figures as required by site EC process procedures.</p>
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ENCLOSURE 1

CD-ROM CONTAINING FINAL SAFETY ANALYSIS REPORT – REVISION 33

(PUBLIC VERSION)

1 CD-ROM Enclosed

ENCLOSURE 2

CD-ROM CONTAINING FINAL SAFETY ANALYSIS REPORT – REVISION 33

(NON-PUBLIC VERSION)

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

1 CD-ROM Enclosed