



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

May 13, 2022

Vice President, Operations  
Entergy Nuclear Operations, Inc.  
Palisades Nuclear Plant  
27780 Blue Star Memorial Highway  
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT – ISSUANCE OF AMENDMENT NO. 272 RE:  
PERMANENTLY DEFUELED TECHNICAL SPECIFICATIONS  
(EPID L-2021-LLA-0099)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 272 to Renewed Facility Operating License No. DPR-20 for Palisades Nuclear Plant (PNP). The amendment consists of changes to the license, including technical specifications (TSs) in response to your application dated June 1, 2021, as supplement by letter dated April 21, 2022.

The amendment revises the PNP Renewed Facility Operating License and the associated TSs to permanently defueled TSs, consistent with the permanent cessation of operations and permanent removal of fuel from the reactor vessel.

A copy of the related Safety Evaluation is also enclosed. 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 No. 50-255

Enclosures:

1. Amendment No. 272 to Renewed License No. DPR-20
2. Safety Evaluation

cc: Listserv



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

ENERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-255

PALISADES NUCLEAR PLANT

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 272  
License No. DP-20

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Entergy Nuclear Operations, Inc. (ENO), dated June 1, 2021, as supplemented by letter dated April 21, 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 Renewed Facility Operating License No. DPR-20 is hereby amended as follows:

- Paragraph 1.B is to read as follows:

B. [deleted]

- Paragraphs 2, 2.B.(1) through 2.B.(3) and 2.B.(5) are to read as follows:

2. Renewed Facility Operating License No. DPR-20 is hereby issued to ENP and ENO as follows:

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

- (1) Pursuant to Section 104b of the Act, as amended, and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," (a) ENP to possess and use, and (b) ENO to possess and use, the facility at the designated location in Van Buren County, Michigan, in accordance with the procedures and limitation set forth in this license;
- (2) ENO, pursuant to the Act and 10 CFR Parts 40 and 70, to possess source and special nuclear material that was used as reactor fuel, in accordance with the limitations for storage, as described in the Updated Final Safety Analysis Report, as supplemented and amended;
- (3) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use byproduct, source, and special nuclear material as sealed sources that were used for reactor startup, sealed sources that were used for reactor instrumentation and are used in the calibration of radiation monitoring equipment, and that were used as fission detectors in amounts as required;
- (5) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials that were produced by the operations of the facility.

- Paragraphs 2.C.(1) through 2.C.(5), 2.C.(7), and 2.C.(8) are to read as follows:

(1) [deleted]

- (2) The Technical Specifications contained in Appendix A, as revised through Amendment No. 272, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. ENO shall maintain the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
- (3) [deleted]
- (4) [deleted]
- (5) Movement of a fuel cask in or over the spent fuel pool is prohibited when irradiated fuel assemblies decayed less than 90 days are in the spent fuel pool.
- (7) [deleted]
- (8) [deleted]

- Paragraphs 2.D, 2.H through 2.K are to read as follows:

- D. [deleted]
- H. [deleted]
- I. [deleted]
- J. [deleted]
- K. This license is effective as of the date of issuance and until the Commission notifies the licensee in writing that the license is terminated.

- The Attachments are hereby amended to read as follows:

Attachment:  
Appendix A – Permanently Defueled Technical Specifications

3. This license amendment is effective following the docketing of the certifications required by 10 CFR 50.82(a)(1)(i) and (ii), which state that Palisades Nuclear Plant has been permanently shut down and defueled, and the irradiated fuel assembly decay time requirement of 17 days established in the analysis of the fuel handling accident in the fuel handling building has been met and shall be implemented within 60 days of the effective date of the amendment, but no later than December 31, 2022.

FOR THE NUCLEAR REGULATORY COMMISSION

Nancy L. Salgado, Chief  
Plant Licensing Branch III  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to Renewed Facility  
Operating License No. DPR-20  
and Technical Specifications

Date of Issuance: May 13, 2022

ATTACHMENT TO LICENSE AMENDMENT NO. 272

PALISADES NUCLEAR POWER STATION

RENEWED FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Replace the following pages of the Renewed Facility Operating License; Appendix A, Technical Specifications; and Appendix B, Environmental Protection Plan, with the attached revised pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Renewed Facility Operating License No. DPR-20

<u>REMOVE</u>	<u>INSERT</u>
-1- through -7-	-1- through -6-

Appendix A, Technical Specifications

<u>REMOVE</u>	<u>INSERT</u>
Title Page	Title Page
TOC i through iii	TOC i
1.1-1 through 1.1-7	1.1-1
1.2-1 through 1.2-3	1.2-1 through 1.2-2
1.3-1 through 1.3-12	1.3-1 through 1.3-2
1.4-1 through 1.4-8	1.4-1 through 1.4-3
2.0-1	2.0-1
3.0-1 through 3.0-6	3.0-1 through 3.0-2
3.1.1-1 through 3.1.7-2	--
3.2.1-1 through 3.2.4-1	--
3.3.1-1 through 3.3.10-1	--
3.4.1-1 through 3.4.17-2	--
3.5.1-1 through 3.5.5-1	--
3.6.1-1 through 3.6.6-3	--
3.7.1-1 through 3.7.13-1	--
3.7.14-1	3.7.14-1
3.7.15-1	3.7.15-1
3.7.16-1	3.7.16-1
3.7.17-1	--
3.8.1-1 through 3.8.10-2	--
3.9.1-1 through 3.9.6-1	--
4.0-1 through 4.0-6	4.0-1 through 4.0-5
5.0-7 through 5.0-32	5.0-7 through 5.0-15

Appendix B, Environmental Protection Plan

<u>REMOVE</u>	<u>INSERT</u>
Title Page	Title Page
Table of Contents	Table of Contents
1-1	1-1
2-1	2-1
3-1 through 3-3	3-1 through 3-3
4-1	4-1
5-1 through 5-4	5-1 through 5-4

ENTERGY NUCLEAR PALISADES, LLC

ENTERGY NUCLEAR OPERATIONS, INC

DOCKET NO. 50-255

PALISADES NUCLEAR PLANT

RENEWED FACILITY OPERATING LICENSE

Renewed License No. DPR-20

1. The Nuclear Regulatory Commission (NRC or the Commission) having previously made the findings set forth in Operating License No. DPR-20, dated February 21, 1991, has now found that:
  - A. The application for Renewed Operating License No. DPR-20 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, and all required notifications to other agencies or bodies have been duly made;
  - B. [deleted];
  - C. Actions have been identified and have been or will be taken with respect to:
    - (1) managing the effects of aging on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1) during the period of extended operation, and
    - (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this renewed operating license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3 for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations;



- D. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
  - E. There is reasonable assurance: (i) that the activities authorized by this renewed operating license 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 set forth in 10 CFR Chapter I;
  - F. Entergy Nuclear Palisades, LLC (ENP) is financially qualified and Entergy Nuclear Operations, Inc. (ENO) is financially and technically qualified to engage in the activities authorized by this renewed operating license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;
  - G. ENP and ENO have satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements" of the Commission's regulations;
  - H. The issuance of this renewed operating license will not be inimical to the common defense and security or to the health and safety of the public;
  - I. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this renewed Facility Operating License No. DPR-20, subject to the conditions for protection of the environment set forth herein, is in accordance with 10 CFR Part 51 (formerly Appendix D to Part 50), of the Commission's regulations and all applicable requirements have been satisfied; and
  - J. The receipt, possession, and use of source, byproduct, and special nuclear material as authorized by this renewed operating license will be in accordance with 10 CFR Parts 30, 40, and 70.
2. Renewed Facility Operating License No. DPR-20, is hereby issued to ENP and ENO as follows:
- A. This renewed license applies to the Palisades Plant, a pressurized light water moderated and cooled reactor and electrical generating equipment (the facility). The facility is located in Van Buren County, Michigan, and is described in the Palisades Plant Updated Final Safety Analysis Report, as supplemented and amended, and in the Palisades Plant Environmental Report, as supplemented and amended.
  - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
    - (1) Pursuant to Section 104b of the Act, as amended, and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," (a) ENP to possess and use, and (b) ENO to possess and use, the facility at the designated location in Van Buren County, Michigan, in accordance with the procedures and limitation set forth in this license;

- (2) ENO, pursuant to the Act and 10 CFR Parts 40 and 70, to possess source, and special nuclear material that was used as reactor fuel, in accordance with the limitations for storage, as described in the Updated Final Safety Analysis Report, as supplemented and amended;
  - (3) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use byproduct, source, and special nuclear material as sealed sources that were used for reactor startup, sealed sources that were used for reactor instrumentation and are used in the calibration of radiation monitoring equipment, and that were used as fission detectors in amounts as required;
  - (4) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material for sample analysis or instrument calibration, or associated with radioactive apparatus or components; and
  - (5) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials that were produced by the operations of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act; to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) [deleted]
  - (2) The Technical Specifications contained in Appendix A, as revised through Amendment No. 272, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. ENO shall maintain the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
  - (3) [deleted]
  - (4) [deleted]
  - (5) Movement of a fuel cask in or over the spent fuel pool is prohibited when irradiated fuel assemblies decayed less than 90 days are in the spent fuel pool.

(6) Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- a. Fire fighting response strategy with the following elements:
  - 1. Pre-defined coordinated fire response strategy and guidance
  - 2. Assessment of mutual aid fire fighting assets
  - 3. Designated staging areas for equipment and materials
  - 4. Command and control
  - 5. Training of response personnel
  
- b. Operations to mitigate fuel damage considering the following:
  - 1. Protection and use of personnel assets
  - 2. Communications
  - 3. Minimizing fire spread
  - 4. Procedures for implementing integrated fire response strategy
  - 5. Identification of readily-available pre-staged equipment
  - 6. Training on integrated fire response strategy
  - 7. Spent fuel pool mitigation measures
  
- c. Actions to minimize release to include consideration of:
  - 1. Water spray scrubbing
  - 2. Dose to onsite responders

(7) [deleted]

(8) [deleted]

D. [deleted]

E. ENO shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Entergy Nuclear Palisades Nuclear Plant Physical Security Plan."

ENO shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Palisades CSP was approved by License Amendment No. 243 as supplemented by changes approved by License Amendment Nos. 248, 253, 259, and 264.

F. [deleted]

G. ENP and ENO shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

- H. [deleted]
- I. [deleted]
- J. [deleted]
- K. This license is effective as of the date of issuance and until the Commission notifies the licensee in writing that the license is terminated.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

J. E. Dyer, Director  
Office of Nuclear Reactor Regulation

Attachments:

1. Appendix A – Permanently Defueled Technical Specifications
2. Appendix B – Environmental Protection Plan

Date of Issuance: January 17, 2007

PALISADES PLANT  
RENEWED FACILITY OPERATING LICENSE DPR-20  
APPENDIX A

**PERMANENTLY DEFUELED**  
**TECHNICAL SPECIFICATIONS**

As Amended through Amendment No. 272

**1.0 USE AND APPLICATION**

- 1.1 Definitions
- 1.2 Logical Connectors
- 1.3 Completion Times
- 1.4 Frequency

**2.0 (Deleted)****3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY****3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY****3.7 FACILITY SYSTEMS**

- 3.7.14 Spent Fuel Pool (SFP) Water Level
- 3.7.15 Spent Fuel Pool (SFP) Boron Concentration
- 3.7.16 Spent Fuel Pool Storage

**4.0 DESIGN FEATURES**

- 4.1 Site Location
- 4.2 (Deleted)
- 4.3 Fuel Storage

**5.0 ADMINISTRATIVE CONTROLS**

- 5.1 Responsibility
- 5.2 Organization
- 5.3 Facility Staff Qualifications
- 5.4 Procedures
- 5.5 Programs and Manuals
- 5.6 Reporting Requirements
- 5.7 High Radiation Area

## 1.0 USE AND APPLICATION

## 1.1 Definitions

## -----NOTE-----

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
CERTIFIED FUEL HANDLER	A CERTIFIED FUEL HANDLER is an individual who complies with provisions of the CERTIFIED FUEL HANDLER training and retraining program required by Specification 5.3.2.
NON-CERTIFIED OPERATOR	A NON-CERTIFIED OPERATOR is a non-licensed operator who complies with the qualification requirements of Specification 5.3.1.



## 1.0 USE AND APPLICATION

### 1.2 Logical Connectors

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<b>PURPOSE</b>	The purpose of this section is to explain the meaning of logical connectors.
	Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connector that appears in TS is <u>AND</u> . The physical arrangement of this connector constitutes logical conventions with specific meanings.
<b>BACKGROUND</b>	Levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action).

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1.2 Logical Connectors

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EXAMPLES

The following example illustrates the use of logical connectors.

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Suspend . . . <u>AND</u> A.2 Initiate . . .	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

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## 1.0 USE AND APPLICATION

### 1.3 Completion Times

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PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe storage and handling of spent nuclear fuel. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the discovery of a situation (e.g., variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the facility is in a specified condition stated in the Applicability of the LCO.</p> <p>The Completion Time begins when a Certified Fuel Handler (CFH) on the shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered.</p> <p>Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the plant is not within the LCO Applicability.</p>

1.3 Completion Times

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EXAMPLE The following example illustrates the use of Completion Times with different Required Actions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent Fuel Pool boron concentration not within limit.	A.1 Suspend movement of fuel assemblies in the Spent Fuel Pool.	Immediately
	<u>AND</u> A.2 Initiate action to restore Spent Fuel Pool boron concentration to within limit	Immediately

Condition A has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition A is entered.

The Required Actions of Condition A are to immediately suspend movement of fuel assemblies in the Spent Fuel Pool and initiate action to restore Spent Fuel Pool boron concentration within limit.

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IMMEDIATE When "Immediately" is used as a Completion Time, the Required Action  
COMPLETION TIME should be pursued without delay and in a controlled manner.

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## 1.0 USE AND APPLICATION

### 1.4 Frequency

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**PURPOSE**                      The purpose of this section is to define the proper use and application of Frequency requirements.

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**DESCRIPTION**                Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR.

The use of "met" and "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria.

1.4 Frequency

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EXAMPLES

The following examples illustrate the type of Frequency statements that appear in the Technical Specifications (TS).

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify level is within limit.	7 days

Example 1.4-1 contains one type of SR encountered in the TS. The Frequency specifies an interval of 7 days during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 7 days, an extension of the time interval to 1.25 times the stated Frequency is allowed by SR 3.0.2 for flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when a variable is outside specified limits, or the facility is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the facility is in a specified condition in the Applicability of the LCO, then SR 3.0.3 becomes applicable.

If the interval as specified by SR 3.0.2 is exceeded while the facility is not in a specified condition in the Applicability of the LCO for which performance of the SR is required, then SR 3.0.4 becomes applicable. The Surveillance must be performed within the Frequency requirements of SR 3.0.2, as modified by SR 3.0.3, prior to entry into the specified condition or the LCO is considered not met (in accordance with SR 3.0.1).

1.4 Frequency

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EXAMPLES  
(continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify...	Prior to storing a fuel assembly...

Example 1.4-2 illustrates a one time performance Frequency. This type of Frequency does not qualify for the extension allowed by SR 3.0.2.

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2.0 (Deleted)



3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1	LCOs shall be met during the specified conditions in the Applicability, except as provided in LCO 3.0.2.
<hr/>	
LCO 3.0.2	Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met.  If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

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### 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

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SR 3.0.1 SRs shall be met during the specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on variables outside specified limits.

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SR 3.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance.

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SR 3.0.3 If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. The delay period is only applicable when there is a reasonable expectation the surveillance will be met when performed. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

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SR 3.0.4 Entry into a specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3.

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3.7 FACILITY SYSTEMS

3.7.14 Spent Fuel Pool (SFP) Water Level

LCO 3.7.14 The SFP water level shall be  $\geq$  647 ft elevation.

-----NOTE-----  
SFP level may be below the 647 ft elevation to support fuel cask movement, if the displacement of water by the fuel cask when submerged in the SFP, would raise SFP level to  $\geq$  647 ft elevation.  
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APPLICABILITY: During movement of irradiated fuel assemblies in the SFP,  
During movement of a fuel cask in or over the SFP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP water level not within limit.	A.1 Suspend movement of irradiated fuel assemblies in SFP.	Immediately
	<u>AND</u> A.2 Suspend movement of fuel cask in or over the SFP.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.14.1 Verify the SFP water level is $\geq$ 647 ft elevation.	7 days

3.7 FACILITY SYSTEMS

3.7.15 Spent Fuel Pool (SFP) Boron Concentration

LCO 3.7.15 The SFP boron concentration shall be  $\geq 1720$  ppm.

APPLICABILITY: When fuel assemblies are stored in the Spent Fuel Pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP boron concentration not within limit.	A.1 Suspend movement of fuel assemblies in the SFP.	Immediately
	<u>AND</u>	
	A.2 Initiate action to restore SFP boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.15.1 Verify the SFP boron concentration is within limit.	7 days

3.7 FACILITY SYSTEMS

3.7.16 Spent Fuel Pool Storage

LCO 3.7.16 Storage in the spent fuel pool shall be as follows:

- a. Each fuel assembly and non-fissile bearing component stored in a Region I Carborundum equipped storage rack shall be within the limitations in Specification 4.3.1.1 and, as applicable, within the requirements of the maximum nominal planar average U-235 enrichment and burnup of Tables 3.7.16-2, 3.7.16-3, 3.7.16-4 or 3.7.16-5,
- b. Fuel assemblies in a Region I Metamic equipped storage rack shall be within the limitations in Specification 4.3.1.2, and
- c. The combination of maximum nominal planar average U-235 enrichment, burnup, and decay time of each fuel assembly stored in Region II shall be within the requirements of Table 3.7.16-1.

APPLICABILITY: Whenever any fuel assembly or non-fissile bearing component is stored in the spent fuel pool or the north tilt pit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Initiate action to restore the noncomplying fuel assembly or non-fissile bearing component within requirements.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.16.1 Verify by administrative means each fuel assembly or non-fissile bearing component meets fuel storage requirements.	Prior to storing the fuel assembly or non-fissile bearing component in the spent fuel pool

## 4.0 DESIGN FEATURES

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### 4.1 Site Location

The Palisades Nuclear Plant is located on property owned by Entergy Nuclear Palisades, LLC on the eastern shore of Lake Michigan approximately four and one-half miles south of the southern city limits of South Haven, Michigan. The minimum distance to the boundary of the exclusion area as defined in 10 CFR 100.3 shall be 677 meters.

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### 4.2 (Deleted)

### 4.3 Fuel Storage

#### 4.3.1 Criticality

- 4.3.1.1 The Region I (See Figure B 3.7.16-1) Carborundum equipped fuel storage racks incorporating Regions 1A, 1B, 1C, 1D, and 1E are designed and shall be maintained with:
- a. Irradiated fuel assemblies having a maximum nominal planar average U-235 enrichment of 4.54 weight percent;
  - b.  $K_{eff} < 1.0$  if fully flooded with unborated water, which includes allowances for uncertainties as described in Section 9.11 of the FSAR;
  - c.  $K_{eff} \leq 0.95$  if fully flooded with water borated to 850 ppm, which includes allowances for uncertainties as described in Section 9.11 of the FSAR;
  - d. Regions 1A, 1B, and 1C have a nominal 10.25 inch center to center distance between fuel assemblies;
  - e. Regions 1D and 1E have a nominal 11.25 inch by 10.69 inch center to center distance between fuel assemblies;
  - f. Region 1A is defined as a subregion of the Region I storage racks located in the main spent fuel pool and is subject to the following restrictions. Fuel assemblies (or fissile bearing components) located in Region 1A shall be in a maximum of two-of-four checkerboard loading pattern of two fuel assemblies (or fissile bearing components) and two empty cells. Designated empty cells may contain non-fuel bearing components in accordance with Section 4.3.1.1m.2. below;

### 4.3 Fuel Storage

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#### 4.3.1 Criticality (continued)

- g. Region 1B is defined as a subregion of the Region I storage racks located in the main spent fuel pool and is subject to the following restrictions. Fuel assemblies (or fissile bearing components) located in Region 1B shall be in a maximum of three-of-four loading pattern consisting of three fuel assemblies (or fissile bearing components) and one empty cell. Fuel assemblies in Region 1B shall meet the enrichment dependent burnup restrictions listed in Table 3.7.16-2. Designated empty cells may contain non-fuel bearing components in accordance with Section 4.3.1.1m.2. below;
- h. Region 1C is defined as a subregion of the Region I storage racks located in the main spent fuel pool and is subject to the following restrictions. Fuel assemblies (or fissile bearing components) located in Region 1C may be in a maximum of four-of-four loading pattern with no required empty cells. Fuel assemblies in Region 1C shall meet the enrichment dependent burnup restrictions listed in Table 3.7.16-3;
- i. Interface requirements for the main spent fuel pool between Region 1A, 1B, and 1C are as follows. Region 1A, 1B, and 1C can be distributed in Region I, in the main spent fuel pool, in any manner provided that any two-by-two grouping of storage cells and the assemblies in them correspond to the requirements of 4.3.1.1f., 4.3.1.1g., or 4.3.1.1h. above;
- j. Region 1D is defined as a subregion of the Region I storage rack located in the north tilt pit and is subject to the following restrictions. Fuel assemblies (or fissile bearing components) located in Region 1D may be in a maximum of three-of-four loading pattern consisting of three fuel assemblies (or fissile bearing components) and one empty cell. Fuel assemblies in Region 1D shall meet the enrichment dependent burnup restrictions listed in Table 3.7.16-4;
- k. Region 1E is defined as a subregion of the Region I storage rack located in the north tilt pit and is subject to the following restrictions. Fuel assemblies (or fissile bearing components) located in Region 1E may be in a maximum of four-of-four loading pattern with no required empty cells. Fuel assemblies in Region 1E shall meet the enrichment dependent burnup restrictions listed in Table 3.7.16-5;

## 4.3 Fuel Storage

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### 4.3.1 Criticality (continued)

- I. Interface requirements for the north tilt pit between Region 1D and 1E are as follows. Region 1D and 1E can be distributed in Region I in the north tilt pit in any manner provided that any two-by-two grouping of storage cells and the assemblies in them correspond to the requirements of 4.3.1.1j. or 4.3.1.1k. above;
- m. Non-fissile bearing component restrictions are as follows:
  - 1. Non-fissile material components may be stored in any designated fuel location in Region 1A, 1B, 1C, 1D, or 1E without restriction.
  - 2. The following non-fuel bearing components (NFBC) may be stored face adjacent to fuel in any designated empty cell in Region 1A or 1B.
    - (i) The gauge dummy assembly and the lead dummy assembly may be stored face adjacent to fuel in any designated empty cells with no minimum required separation distance.
    - (ii) A component comprised primarily of stainless steel that displaces less than 30 square inches of water in any plane within the active fuel region may be stored in any designated empty cell as long as the NFBC is at least ten locations away from any other NFBC that is in a designated empty cell, with the exception of 4.3.1.1m.2.(i) above.
  - 3. Control blades may be stored in both fueled and unfueled locations in Regions 1D and 1E, with no limitation on the number.



### 4.3 Fuel Storage

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- 4.3.1.2 The Region I (See Figure B 3.7.16-1) Metamic equipped fuel storage racks are designed and shall be maintained with:
- a. Fuel assemblies having a maximum nominal planar average U-235 enrichment of 4.95 weight percent;
  - b.  $K_{eff} < 1.0$  if fully flooded with unborated water, which includes allowances for uncertainties as described in Section 9.11 of the FSAR;
  - c.  $K_{eff} \leq 0.95$  if fully flooded with water borated to 850 ppm, which includes allowances for uncertainties as described in Section 9.11 of the FSAR;
  - d. A nominal 10.25 inch center to center distance between fuel assemblies;
  - e. Irradiated fuel assemblies;
  - f. Two empty rows of storage locations shall exist between the fuel assemblies in a Carborundum equipped rack and the fuel assemblies in an adjacent Metamic equipped rack; and
  - g. A minimum Metamic B<sup>10</sup> areal density of 0.02944 g/cm<sup>2</sup>.
- 4.3.1.3 The Region II fuel storage racks (See Figure B 3.7.16-1) are designed and shall be maintained with:
- a. Fuel assemblies having maximum nominal planar average U-235 enrichment of 4.60 weight percent;
  - b.  $K_{eff} < 1.0$  if fully flooded with unborated water, which includes allowances for uncertainties as described in Section 9.11 of the FSAR.
  - c.  $K_{eff} \leq 0.95$  if fully flooded with water borated to 850 ppm, which includes allowance for uncertainties as described in Section 9.11 of the FSAR.
  - d. A nominal 9.17 inch center to center distance between fuel assemblies; and
  - e. Irradiated fuel assemblies which meet the maximum nominal planar average U-235 enrichment, burnup, and decay time requirements of Table 3.7.16-1.
- 4.3.1.4 (Deleted)

### 4.3 Fuel Storage

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#### 4.3.2 Drainage

The spent fuel storage pool cooling system suction and discharge piping is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 644 ft 5 inches.

#### 4.3.3 Capacity

The spent fuel storage pool and north tilt pit are designed and shall be maintained with a storage capacity limited to no more than 892 fuel assemblies.

## 5.5 Programs and Manuals

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5.5.2 (Deleted) |

5.5.3 (Deleted) |

### 5.5.4 Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the Offsite Dose Calculation Manual (ODCM), (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas conforming to ten times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402.
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM,
- d. Limitation on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each plant to unrestricted areas conforming to 10 CFR 50, Appendix I,
- e. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be in accordance with the following:
  1. For noble gases: a dose rate  $\leq 500$  mrem/yr to the whole body and a dose rate  $\leq 3000$  mrem/yr to the skin, and
  2. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate  $\leq 1500$  mrem/yr to any organ;

5.5 Programs and Manuals

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5.5.4 Radioactive Effluent Controls Program (continued)

- f. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary conforming to 10 CFR 50, Appendix I,
- g. Limitations on the annual and quarterly doses to a member of the public from Iodine-131, Iodine-133, tritium and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each plant to areas beyond the site boundary conforming to 10 CFR 50, Appendix I,
- h. Limitations on the annual doses or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR 190.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 (Deleted) |

5.5.6 (Deleted) |

5.5.7 (Deleted) |

5.5.8 (Deleted) |

5.5.9 (Deleted) |

5.5.10 (Deleted) |

5.5.11 (Deleted) |

## 5.5 Programs and Manuals

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### 5.5.12 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:
  1. A change in the TS incorporated in the license; or
  2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.
- d. Proposed changes that meet the criteria of Specification 5.5.12.b. above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.13 (Deleted) |

5.5.14 (Deleted) |

### 5.5.15 Process Control Program

- a. The Process Control Program shall contain the current formula, sampling, analyses, tests, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR 20, 10 CFR 71, Federal and State regulations, and other requirements governing the disposal of the radioactive waste.

5.5 Programs and Manuals

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5.5.15 Process Control Program (continued)

b. Changes to the Process Control Program:

1. Shall be documented and records of reviews performed shall be retained as required by the Quality Program. This documentation shall contain:
  - a) Sufficient information to support the change together with the appropriate analyses or evaluation justifying the change(s) and
  - b) A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
2. Shall become effective after approval by the plant manager.

5.5.16 (Deleted) |

5.5.17 (Deleted) |

## 5.0 ADMINISTRATIVE CONTROLS

### 5.6 Reporting Requirements

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The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 (Deleted)

5.6.2 Radiological Environmental Operating Report

The Radiological Environmental Operating Report covering the operation of the facility during the previous calendar year shall be submitted before May 15 of each year. The report shall include summaries, interpretations, and analysis of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering operation of the facility in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the facility. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual and Process Control Program, and shall be in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

5.6.4 (Deleted)

5.6.5 (Deleted)

5.6.6 (Deleted)

5.6.7 (Deleted)

5.6.8 (Deleted)

## 5.0 ADMINISTRATIVE CONTROLS

### 5.7 High Radiation Area

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As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

- 5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation
- a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.
  - b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP), or equivalent, that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
  - c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP, or equivalent, while performing their assigned duties, provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
  - d. Each individual or group entering such an area shall possess:
    1. A radiation monitoring device that continuously displays radiation dose rates in the area; or
    2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
    3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or



## 5.7 High Radiation Area

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### 5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,
  - (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area, and who is responsible for controlling personnel exposure within the area, or
  - (ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.
- e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.

## 5.7 High Radiation Area

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### 5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation

- a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:
  1. All such door and gate keys shall be maintained under the administrative control of the shift manager, radiation protection manager, or his or her designee.
  2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP, or equivalent, while performing radiation surveys in such areas, provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual or group entering such an area shall possess:
  1. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
  2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, and with the means to communicate with and control every individual in the area, or

## 5.7 High Radiation Area

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### 5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation (continued)

3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,
    - (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; and who is responsible for controlling personnel exposure within the area, or
    - (ii) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.
  4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.
  - e. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.
  - f. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.
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PALISADES PLANT

RENEWED FACILITY OPERATING LICENSE DPR-20

APPENDIX B

**ENVIRONMENTAL PROTECTION PLAN  
(NON-RADIOLOGICAL)**

PALISADES PLANT  
ENVIRONMENTAL PROTECTION PLAN  
(NON-RADIOLOGICAL)  
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## 1.0 Objectives of the Environmental Protection Plan

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during handling and storage of spent fuel and maintenance of the nuclear facility. The principal objectives of the EPP are as follows:

- (1) Verify that the facility is maintained in an environmentally acceptable manner, as established by the FES and other NRC environmental impact assessments.
- (2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.
- (3) Keep NRC informed of the environmental effects of handling and storage of spent fuel and maintenance of the facility and of actions taken to control those effects.

Environmental concerns identified in the FES which relate to water quality matters are regulated by way of the licensee's NPDES permit.

## 2.0 Environmental Protection Issues

In the final addendum to the FES-OL dated February 1978 the staff considered the environmental impacts associated with the operation of the Palisades Plant. Certain environmental issues were identified which required study or license conditions to resolve environmental concerns and to assure adequate protection of the environment.

### 2.1 Aquatic Issues

Specific aquatic issues raised by the staff in the FES-OL were:

The need for aquatic monitoring programs to confirm that thermal mixing occurs as predicted, that chlorine releases are controlled within those discharge concentrations evaluated, and that effects on aquatic biota and water quality due to facility operation are no greater than predicted.

Aquatic issues are addressed by the effluent limitations, and monitoring requirements are contained in the effective NPDES permit issued by the State of Michigan, Department of Natural Resources. The NRC will rely on this agency for regulation of matters involving water quality and aquatic biota.

### 2.2 Terrestrial Issues

1. Potential impacts on the terrestrial environment associated with drift from the mechanical draft cooling towers. (FES-OL addendum Section 6.3)

### 3.0 Consistency Requirements

#### 3.1 Facility Design and Operation

The licensee may make changes in facility design or operation or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question, and do not involve a change in the Environmental Protection Plan. Changes in facility design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.3 are not subject to the requirements of this section.

Before engaging in additional construction or operational activities which may affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activities and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. When such activity involves a change in the Environmental Protection Plan, such activity and change to the Environmental Protection Plan may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the final environmental statement (FES) as modified by staff's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents [in accordance with 10 CFR Part 51.5(b)(2)] or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact.



The licensee shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this Subsection. These records shall include a written evaluation which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question nor constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0. The licensee shall include as part of his Annual Environmental Operating Report (per Subsection 5.4.1) brief descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

### 3.2 Reporting Related to the NPDES Permits and State Certifications

Violations of the NPDES Permit or the State certification (pursuant to Section 401 of the Clean Water Act) shall be reported to the NRC by submittal of copies of the reports required by the NPDES Permit or certification.

Changes and additions to the NPDES Permit or the State certification shall be reported to the NRC within 30 days following the date the change is approved. If a permit or certification, in part or in its entirety, is appealed and stayed, the NRC shall be notified within 30 days following the date the stay is granted.

The NRC shall be notified of changes to the effective NPDES Permit proposed by the licensee by providing NRC with a copy of the proposed change at the same time it is submitted to the permitting agency. The notification of a licensee-initiated change shall include a copy of the requested revision submitted to the permitting agency. The licensee shall provide the NRC a copy of the application for renewal of the NPDES permit at the same time the application is submitted to the permitting agency.

3.3 Changes Required for Compliance with Other Environmental Regulations  
Changes in facility design or operation and performance of tests or experiments which are required to achieve compliance with other Federal, State, or local environmental regulations are not subject to the requirements of Section 3.1.

#### 4.0 Environmental Conditions

##### 4.1 Unusual or Important Environmental Events

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to the handling and storage of spent fuel and maintenance of the facility shall be recorded and promptly reported to the NRC within 24 hours by telephone, telegraph, or facsimile transmissions followed by a written report per Subsection 5.4.2. The following are examples: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, increase in nuisance organisms or conditions and unanticipated or emergency discharge of waste water or chemical substances.

No routine monitoring programs are required to implement this condition.

#### 4.2 Environmental Monitoring

##### 4.2.1 Meteorological Monitoring

A meteorological monitoring program shall be conducted in the vicinity of the plant site for at least two years after conversion to cooling towers to document effects of cooling tower operation on meteorological variables. Data on the following meteorological variables shall be obtained from the station network shown in Figure 4.2.1: precipitation, temperature, humidity, solar radiation, downcoming radiation, visibility, wind direction and wind speed. In addition, studies shall be conducted for at least two years to measure affects of cooling tower drift on vegetation by associated salt deposition, icing or other causes.

5.0 Administrative Procedures

5.1 Review and Audit

The licensee shall provide for review and audit of compliance with the Environmental Protection Plan. The audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records and logs relative to the environmental aspects of previous plant operation and the handling and storage of spent fuel and maintenance of the facility shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

Records of modifications to facility structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the facility. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

### 5.3 Changes in Environmental Protection Plan

Request for change in the Environmental Protection Plan shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the Environmental Protection Plan.

### 5.4 Facility Reporting Requirements

#### 5.4.1 Routine Reports

An Annual Environmental Operating Report describing implementation of this EPP for the previous year shall be submitted to the NRC prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following issuance of the operating license. The period of the first report shall begin with the date of issuance of the operating license.

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this Environmental Protection Plan for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous nonradiological environmental monitoring reports, and an assessment of the observed impacts of the facility operation on the environment. If harmful effects or evidence of trends towards irreversible damage to the environment are observed, the licensee shall provide a detailed analysis of the data and a proposed course of action to alleviate the problem.

The Annual Environmental Operating Report shall also include:

- (a) A list of EPP noncompliances and the corrective actions taken to remedy them.
- (b) A list of all changes in facility design or operation, tests, and experiments made in accordance with Subsection 3.1 which involved a potentially significant unreviewed environmental issue.
- (c) A list of nonroutine reports submitted in accordance with Subsection 5.4.2.

In the event that some results are not available by the report due date, the report shall be submitted noting and explaining the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

#### 5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of nonroutine event. The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and facility operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified and their preliminary responses.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided a copy of such report at the time it is submitted to the other agency.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 272 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-20

ENTERGY NUCLEAR OPERATIONS, INC.

PALISADES NUCLEAR PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By application dated June 1, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21152A108), as supplemented by letter dated April 21, 2022 (ADAMS Accession No. ML22111A127), Entergy Nuclear Operations, Inc. (ENO) requested changes to Renewed Facility Operating License (RFOL) No. DPR-20 and the associated technical specifications (TSs) for Palisades Nuclear Plant (PNP). Specifically, ENO requested an amendment to revise the PNP RFOL and the associated TSs to permanently defueled technical specifications (PDTs) consistent with the permanent cessation of operations and permanent removal of fuel from the reactor vessel.

The supplement dated April 21, 2022, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC or Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 7, 2021 (86 FR 50194).

2.0 BACKGROUND

By letter dated January 4, 2017 (ADAMS Accession No. ML17004A062), as supplemented by letters dated September 28, 2017, and October 19, 2017 (ADAMS Accession Nos. ML17271A233 and ML17292A032), the licensee submitted notification to NRC pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.82(a)(1) and 50.4(b)(8) indicating that it would permanently shut down the PNP no later than May 31, 2022.

Once the licensee submits to the NRC the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel in accordance with 10 CFR 50.82(a)(1)(i) and (ii) and 10 CFR 50.4(b)(8) and (9), and the certifications are docketed, the 10 CFR Part 50 license for PNP will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel.



NRC staff has previously granted amendments consistent with PNP transitioning to cessation of operations and permanent defueling. By letter dated August 21, 2017 (ADAMS Accession No. ML17151A350), the NRC approved a Certified Fuel Handler (CFH) training and retraining program for PNP. By letter dated June 4, 2018 (ADAMS Accession No. ML18114A410), the NRC issued Amendment No. 266 for PNP. This amendment revised and removed certain requirements from the Section 5.0, "Administrative Controls," portions of the PNP TSs that are not applicable to the facility in a permanently defueled condition. The amendment also revised and made editorial changes to the TS Table of Contents; Section 1.0, "Definitions"; and Section 4.0, "Design Features." Also, by letter dated September 24, 2018 (ADAMS Accession No. ML18170A219), the NRC issued Amendment No. 267 for PNP. This amendment revised the on-shift staffing and emergency response organization in the site emergency plan for the post-shutdown and permanently defueled condition.

### 3.0 REGULATORY EVALUATION

#### 3.1 Technical Specifications

In 1996, the NRC added regulations, including 10 CFR 50.36(c)(6) and (e) ([Decommissioning of Nuclear Power Reactors, 61 Fed. Reg. 39,278](#) (July 29, 1996)) clarifying that existing technical specifications for reactors that are not authorized to operate will remain effective until removed or modified by license amendment. The Commission explained (61 Fed. Reg. at 39,283):

In addition to continuing requirements that the licensee must comply with, such as 10 CFR part 20, regarding protection of workers and the public from radiation, and appendix B to 10 CFR part 50 regarding quality assurance, the final rule explicitly extends certain technical requirements to cover decommissioning activities (e.g., Secs. 50.36, 50.36a, 50.36b, and Appendix I regarding technical specifications for surveillance requirements, administrative controls, control of effluents, and conditions to protect the environment). Thus, there will be a licensing basis appropriate to the activities undertaken using the Sec. 50.59 process during decommissioning. By maintaining certain requirements throughout the decommissioning process, licensees will be able to use the existing Sec. 50.59 process to perform decommissioning activities and thus provide comparable assurance that protection of the public health, safety, and the environment will not be compromised.

Accordingly, 10 CFR 50.36(e) states that the provisions 10 CFR 50.36 "apply to each nuclear reactor licensee whose authority to operate the reactor has been removed by license amendment, order, or regulation." And 10 CFR 50.36(c)(6) states:

Decommissioning. This paragraph applies only to nuclear power reactor facilities that have submitted the certifications required by § 50.82(a)(1)<sup>1</sup> and to non-power

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<sup>1</sup> Pursuant to 10 CFR 50.82(a)(1)(i), "[w]hen a licensee has determined to permanently cease operations the licensee shall, within 30 days, submit a written certification to the NRC." Per 10 CFR 50.82(a)(1)(ii), "[o]nce fuel has been permanently removed from the reactor vessel, the licensee shall submit a written certification to the NRC." Per 10 CFR 50.82(a)(2), "[u]pon docketing of the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel, ..., the 10 CFR part 50 license no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel."

reactor facilities which are not authorized to operate. Technical specifications involving safety limits, limiting safety system settings, and limiting control system settings; limiting conditions for operation; surveillance requirements; design features; and administrative controls will be developed on a case-by-case basis.

Under 10 CFR 50.92(a), determinations on whether to grant an applied-for license amendment are to be guided by the considerations that govern the issuance of initial licenses to the extent applicable and appropriate. Both the common standards for licenses in 10 CFR 50.40(a) (regarding, among other things, consideration of the operating procedures, the facility and equipment, the use of the facility, and other technical specifications, or the proposals) and those specifically for issuance of operating licenses in 10 CFR 50.57(a)(3), provide that there must be reasonable assurance that the activities at issue will not endanger the health and safety of the public, and that the applicant will comply with the Commission's regulations.

Therefore, when deciding whether to amend the technical specifications for a permanently shutdown and defueled reactor such as PNP, the staff considers, on a case-by-case basis, whether the proposed amended technical specifications, along with the operating procedures, the facility and equipment, and the use of the facility collectively provide reasonable assurance that the applicant will comply with the Commission's regulations, and that the health and safety of the public will not be endangered.

### 3.2 Radiological Consequences from Design-Basis Accidents

Radiological accidents considered in licensing nuclear power plants are classified as design-basis accidents (DBAs) and severe (beyond design basis) accidents. DBAs are those accidents that both the licensee and the NRC staff evaluate to ensure that the plant can withstand normal and abnormal transients and a broad spectrum of postulated accidents without undue hazard to the health and safety of the public. Severe accidents are those that are beyond the design basis of the plant. They are more severe than DBAs because they may result in substantial damage to the fuel, whether or not there are serious offsite consequences. For the most part, DBAs focus on reactor operation and are not applicable to plants undergoing decommissioning. The only DBAs or severe accidents applicable to a decommissioning plant are typically those involving the spent fuel pool (SFP). These postulated accidents are not expected to occur during the life of the plant but are evaluated to establish the design basis for the preventive and mitigative safety systems of the spent fuel storage facility.

Regulations governing accidents that must be addressed by nuclear power facilities, both operating and shutdown, are found in 10 CFR Part 50 and 10 CFR Part 100. The environmental impacts of DBAs, including those associated with the SFP, are evaluated during the initial licensing process. The ability of the plant to withstand these accidents is demonstrated to be acceptable before issuance of the operating license. The results of these evaluations are found in license documentation, such as the staff's safety evaluation report, the final environmental impact statement, and in the licensee's Updated Final Safety Analysis Report (UFSAR) or equivalent document. The consequences for these events are evaluated for the hypothetical maximally exposed individual. The licensee is required to maintain the acceptable design and performance criteria throughout the life of the plant.

The regulation in 10 CFR 100.11, "Determination of exclusion area, low population zone, and population center distance," states, in part:

- (a) As an aid in evaluating a proposed site, an applicant should assume a fission product release<sup>2</sup> from the core, the expected demonstrable leak rate from the containment and the meteorological conditions pertinent to his site to derive an exclusion area, a low population zone and population center distance. For the purpose of this analysis, which shall set forth the basis for the numerical values used, the applicant should determine the following:
- (1) An exclusion area of such size that an individual located at any point on its boundary for two hours immediately following onset of the postulated fission product release would not receive a total radiation dose to the whole body in excess of 25 rem<sup>3</sup> or a total radiation dose in excess of 300 rem to the thyroid from iodine exposure.
  - (2) A low population zone of such size that an individual located at any point on its outer boundary who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage) would not receive a total radiation dose to the whole body in excess of 25 rem or a total radiation dose in excess of 300 rem to the thyroid from iodine exposure.

The NRC staff evaluated the radiological consequences of the postulated several DBAs against the dose criteria specified in 10 CFR 50.67, "Accident source term," and using the guidance described in Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000 (ADAMS Accession No. ML003716792). RG 1.183 provides guidance to licensees on acceptable application of alternate source term (AST) submittals, including acceptable radiological analysis assumptions for use in conjunction with the accepted AST.

By letter dated September 28, 2007 (ADAMS Accession No. ML072470676), the NRC issued Amendment No. 226 for PNP. This amendment approved the fuel handling accident (FHA) analysis utilizing the AST methodology for PNP in accordance with 10 CFR 50.67 to perform the radiological consequences analyses of DBAs as described in RG 1.183.

The FHA-specific dose acceptance criteria are specified in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), Section 15.0.1, "Radiological Consequence Analyses Using Alternative Source Terms," Revision 0, July 2000 (ADAMS Accession No. ML003734190).

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<sup>2</sup> The fission product release assumed for these calculations should be based upon a major accident, hypothesized for purposes of site analysis or postulated from considerations of possible accidental events, that would result in potential hazards not exceeded by those from any accident considered credible. Such accidents have generally been assumed to result in substantial meltdown of the core with subsequent release of appreciable quantities of fission products.

<sup>3</sup> The whole body dose of 25 rem referred to above corresponds numerically to the once in a lifetime accidental or emergency dose for radiation workers which, according to National Council on Radiation Protection and Measurements (NCRP) recommendations may be disregarded in the determination of their radiation exposure status (see National Bureau of Standards (NBS) Handbook 69 dated June 5, 1959). However, neither its use nor that of the 300 rem value for thyroid exposure as set forth in these site criteria guides are intended to imply that these numbers constitute acceptable limits for emergency doses to the public under accident conditions. Rather, this 25 rem whole body value and the 300 rem thyroid value have been set forth in these guides as reference values, which can be used in the evaluation of reactor sites with respect to potential reactor accidents of exceedingly low probability of occurrence, and low risk of public exposure to radiation.

The dose acceptance criteria for the FHA are a total effective dose equivalent (TEDE) of 6.3 roentgen equivalent man (rem) at the exclusion area boundary (EAB) for the worst 2 hours, 6.3 rem at the outer boundary of the low population zone (LPZ), and 5 rem in the control room (CR) for the duration of the accident.

The regulation at 10 CFR 50.67(b)(2) states, in part, that the NRC may issue an amendment to a licensee's current accident source term in design basis radiological consequence analyses only if the licensee's analysis demonstrates with reasonable assurance that:

- (i) An individual located at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 0.25 Sv [Sievert] (25 rem)<sup>4</sup> total effective dose equivalent (TEDE).
- (ii) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage), would not receive a radiation dose in excess of 0.25 Sv (25 rem) total effective dose equivalent (TEDE).
- (iii) Adequate radiation protection is provided to permit access to and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 0.05 Sv (5 rem) total effective dose equivalent (TEDE) for the duration of the accident.

Appendix A to 10 CFR Part 50, "General Design Criteria [GDC] for Nuclear Power Plants," Criterion 19, "Control room," states, in part:

A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. Equipment at appropriate locations outside the control room shall be provided (1) with a design capability for prompt hot shutdown of the reactor, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, and (2) with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures.

The emergency planning requirements of 10 CFR 50.47, "Emergency plans," and Appendix E to 10 CFR Part 50, "Emergency Planning and Preparedness for Production and Utilization Facilities," continue to apply to a nuclear power reactor after permanent cessation of operations and removal of fuel from the reactor vessel. There are no explicit regulatory provisions distinguishing emergency planning requirements for a power reactor that has been permanently shut down from those for an operating power reactor. The NRC staff notes that

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<sup>4</sup> The use of 0.25 Sv (25 rem) TEDE is not intended to imply that this value constitutes an acceptable limit for emergency doses to the public under accident conditions. Rather, this 0.25 Sv (25 rem) TEDE value has been stated in this section as a reference value that can be used in the evaluation of proposed design-basis changes with respect

the risk of an offsite radiological release is significantly lower and the types of possible accidents are significantly fewer at a nuclear power reactor that has permanently ceased operations and removed fuel from the reactor vessel than at an operating power reactor.

Nuclear Energy Institute (NEI) topical report NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6 (ADAMS Accession No. ML12326A805), provides guidance for the development of emergency action levels (EALs) for reactors in a permanently defueled condition. The NEI 99-01 topical report was endorsed by the NRC in a letter dated March 28, 2013 (ADAMS Accession No. ML12346A463). Revision 6 of NEI 99-01 states that the accident analysis necessary to adopt the permanently defueled EAL scheme must confirm that the source terms and release motive forces are not sufficient to warrant classification of a site area emergency (SAE) or general emergency. An SAE would be declared for any events where exposure levels beyond the site area boundary are expected to exceed 10 percent of the Environmental Protection Agency (EPA) Protective Action Guides (PAGs). The EPA PAG for sheltering or evacuation of the public is a projected dose of one to five rem total effective dose (TED<sup>5</sup>) in 4 days. In addition, the EPA PAG for recommending the administration of potassium iodide (KI) (as a thyroid blocking agent) is a projected dose of 5 rem to the child thyroid from radioactive iodine. Correspondingly, NEI 99-01 established the SAE classification threshold as 100 millirem (mrem) TEDE or 500 mrem thyroid committed dose equivalent.

The SRP Section 15.0.1 provides review guidance to the staff for the review of AST amendment requests. Section 15.0.1 states that the NRC reviewer should evaluate the proposed change against the guidance in RG 1.183. The dose acceptance criteria for the FHA are a TEDE of 6.3 rem at the EAB for the worst 2 hours, 6.3 rem at the outer boundary of the LPZ, and 5 rem in the CR for the duration of the accident.

Regulatory Issue Summary (RIS) 2006-04, "Experience with Implementation of Alternative Source Terms," dated March 7, 2006 (ADAMS Accession No. ML053460347), discusses experiences with analyzing an accident involving a release from off-gas or waste systems. As part of full AST implementation, some licensees have included an accident involving a release from their off-gas or waste gas system. For this type of accident, licensees have proposed acceptance criteria of 500 mrem TEDE. The acceptance criterion for this event is that associated with the dose to an individual member of the public as described in 10 CFR Part 20, "Standards for Protection Against Radiation." When the NRC revised 10 CFR Part 20 to incorporate a TEDE dose, the offsite dose to an individual member of the public was changed from 500 mrem whole body to 100 mrem TEDE. Therefore, any licensee who chooses to implement AST for an off-gas or waste gas system release should base its acceptance criteria on 100 mrem TEDE. Licensees may also choose not to implement AST for this accident and continue with their existing analysis and acceptance criteria of 500 mrem whole body.

Branch Technical Position 11-5, "Postulated Radioactive Release Due to a Waste Gas System Leak or Failure," of SRP Chapter 11, "Radioactive Waste Management," provides guidance to the reviewer for assessing the analysis of an accidental release from the waste gas system.

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<sup>5</sup> For the purposes of this safety evaluation, the terms "TED" and "TEDE" are used interchangeably as both describing the combined effects of internal and external radiation exposure.

### 3.3 Spent Fuel Pool (SFP) Criticality

The General Design Criterion (GDC) 62, "Prevention of criticality in fuel storage and handling," states that, "Criticality in the fuel storage and handling system shall be prevented by physical systems or processes, preferably by use of geometrically safe configurations."

Per 10 CFR 50.68(a), each holder of an operating license shall comply with either 10 CFR 70.24 or the requirements in 10 CFR 50.68(b). The licensee has elected to meet the 10 CFR 50.68(b) requirements. Accordingly, the licensee must meet 10 CFR 50.68(b)(1)-(8). For the purposes of this license amendment request (LAR), only the first four subsections are relevant and are as follows:

- (1) Plant procedures shall prohibit the handling and storage at any one time of more fuel assemblies than have been determined to be safely subcritical under the most adverse moderation conditions feasible by unborated water.
- (2) The estimated ratio of neutron production to neutron absorption and leakage ( $k$ -effective) of the fresh fuel in the fresh fuel storage racks shall be calculated assuming the racks are loaded with fuel of the maximum fuel assembly reactivity and flooded with unborated water and must not exceed 0.95, at a 95 percent probability, 95 percent confidence level. This evaluation need not be performed if administrative controls and/or design features prevent such flooding or if fresh fuel storage racks are not used.
- (3) If optimum moderation of fresh fuel in the fresh fuel storage racks occurs when the racks are assumed to be loaded with fuel of the maximum fuel assembly reactivity and filled with low-density hydrogenous fluid, the  $k$ -effective corresponding to this optimum moderation must not exceed 0.98, at a 95 percent probability, 95 percent confidence level. This evaluation need not be performed if administrative controls and/or design features prevent such moderation or if fresh fuel storage racks are not used.
- (4) If no credit for soluble boron is taken, the estimated ratio of neutron production to neutron absorption and leakage ( $k$ -effective) of the spent fuel storage racks loaded with fuel of the maximum fuel assembly reactivity must not exceed 0.95, at a 95 percent probability, 95 percent confidence level, if flooded with unborated water. If credit is taken for soluble boron, the  $k$ -effective of the spent fuel storage racks loaded with fuel of the maximum fuel assembly reactivity must not exceed 0.95, at a 95 percent probability, 95 percent confidence level, if flooded with borated water, and the  $k$ -effective must remain below 1.0 (subcritical), at a 95 percent probability, 95 percent confidence level, if flooded with unborated water.

### 3.4 Fracture Toughness

The regulation at 10 CFR 50.60, "Acceptance Criteria for Fracture Prevention Measures for Light-water Nuclear Power Reactors for Normal Operation" states that:

- (a) Except as provided in paragraph (b) of this section, all light-water nuclear power reactors, other than reactor facilities for which the certifications required under

§ 50.82(a)(1) have been submitted, must meet the fracture toughness and material surveillance program requirements for the reactor coolant pressure boundary set forth in appendices G and H to this part.

- (b) Proposed alternatives to the described requirements in Appendices G and H of this part or portions thereof may be used when an exemption is granted by the Commission under § 50.12.

Appendix G to 10 CFR Part 50, "Fracture Toughness Requirements" states, in part, that:

This appendix specifies fracture toughness requirements for ferritic materials of pressure-retaining components of the reactor coolant pressure boundary of light-water nuclear power reactors to provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests, to which the pressure boundary may be subjected over its service lifetime.

The pressure-retaining components of the reactor coolant pressure boundary that are made of ferritic materials must meet the requirements of the ASME Code, supplemented by the additional requirements set forth below, for fracture toughness during system hydrostatic tests and any condition of normal operation, including anticipated operational occurrences. Reactor vessels may continue to be operated only for that service period within which the requirements of this section are satisfied. For the reactor vessel beltline materials, including welds, plates and forgings, the values of  $RT_{NDT}$  and Charpy upper-shelf energy must account for the effects of neutron radiation, including the results of the surveillance program of Appendix H of this part. The effects of neutron radiation must consider the radiation conditions (i.e., the fluence) at the deepest point on the crack front of the flaw assumed in the analysis.

Appendix H to 10 CFR Part 50, "Reactor Vessel Material Surveillance Program Requirements" states, in part, that:

The purpose of the material surveillance program required by this appendix is to monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region of light-water nuclear power reactors which result from exposure of these materials to neutron irradiation and the thermal environment. Under the program, fracture toughness test data are obtained from material specimens exposed in surveillance capsules, which are withdrawn periodically from the reactor vessel. These data will be used as described in Section IV of Appendix G to Part 50.

Regulation 10 CFR Part 50.61, "Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events," requires that pressurized water reactors do not approach the levels of embrittlement that make them susceptible to failure due to pressurized thermal shock. With a sufficiently embrittled reactor vessel (RV), the combination of cold vessel surface, high thermal stresses and high pressure can cause the brittle propagation of small cracks in the RV, potentially resulting in propagation of a through-wall crack and possible failure of the vessel.

Regulation 10 CFR 50.61a, "Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events," provides an alternate approach to 10 CFR Part 50.61 to demonstrate adequate fracture toughness of the reactor vessel due to their susceptibility to failure as a result of pressurized thermal shock, including less restrictive screening criteria than those included in 10 CFR 50.61.

## 4.0 TECHNICAL EVALUATION

### 4.1 Accident Analysis

Chapter 14 of the PNP UFSAR (ADAMS Accession No. ML21125A341) and license Amendment No. 226 describe the postulated DBA and transient scenarios applicable to PNP during power operations. They demonstrate that the plant could be operated safely and that radiological consequences from postulated accidents do not exceed the regulatory guidelines of 10 CFR 50.67 or 10 CFR Part 100, as applicable. Two basic groups of events are pertinent to safety: abnormal operational transients and postulated DBAs. These two groups were investigated separately. The analyses of the abnormal operational transients evaluate the ability of the plant protection features to ensure that during these transients no fuel damage occurs, and the RCS pressure limit is not exceeded. The safety design limits require that damage to the fuel be limited and that no nuclear system process barrier damage results from any abnormal operational occurrence. Thus, analysis of this group of events evaluates the features that protect the first two radioactive material barriers. Analysis of the events in the second group, postulated DBAs, evaluates situations that require functioning of the engineered safeguards in order to protect the fission product barriers, including containment, in order to minimize the offsite radiological consequences.

The most severe postulated DBA involves damage to the nuclear reactor core and the release of large quantities of fission products. Many of these accident scenarios involve failures or malfunctions of systems, which could affect the fuel in the reactor vessel. With the termination of reactor operations and the permanent removal of fuel from the reactor vessel, such accidents are no longer possible. Therefore, the postulated accidents involving failure or malfunction of the reactor, RCS, steam system, or turbine generator, are no longer applicable. While spent fuel remains in the SFP, the accidents that remain applicable to PNP in the permanently shutdown and defueled condition are the postulated cask drop accidents, FHA in the fuel handling building, and the accidental release of waste liquid or waste gas. For completeness, the NRC staff also evaluated the applicability of other DBAs documented in the PNP UFSAR to ensure that these accidents would not have consequences that could potentially exceed the 10 CFR 100.11 dose limits and RG 1.183 dose acceptance criteria.

#### 4.1.1 Cask Drop Accident

The spent fuel cask drop accident evaluates a potential cask drop inside the SFP. Since spent fuel will continue to be stored in the SFP following permanent removal of fuel from the reactor, the accident continues to be applicable in the permanently defueled condition. The licensee notes that while the crane normally meets single-failure-proof criteria during cask handling activities, there may be situations in which lifting devices used with the main hook do not meet single-failure-proof requirements. For this reason, analysis of the radiological consequences of a cask drop accident are required. The licensee proposed to rely on previous analysis used in the approval of license Amendment No. 226, to ensure requirements will continue to be met during the permanently defueled condition. Therefore, the NRC staff reviewed Amendment No. 226 and UFSAR Section 14.11.3.1.1, which discusses the radiological consequences of the cask drop accident. The staff found in the technical analysis for Amendment 226 that if the cask drop accident occurs after 90 days of decay, the licensee will continue to meet the criteria of 6.3 rem at the EAB and LPZ and the 5 rem CR dose limit.

TSs, such as TS 3.7.10, "Control Room Ventilation (CRV) Filtration," and TS 3.7.12, "Fuel Handling Area Ventilation System," are in place during operation to ensure safe operation when



moving a cask. TS 3.7.10 requires that CRV filtration be operable in certain conditions, including when moving a fuel cask in or over the SFP. In addition, TS 3.7.12 requires that the fuel handling area ventilation system be operable in certain conditions, including during movement of a fuel cask in or over the SFP when irradiated fuel assemblies with less than 90 days decay time are in the fuel handling building. These TSs are in place to ensure that the consequences of a cask drop accident did not exceed the accident dose criteria. In the June 1, 2021, application for Amendment 272, the licensee proposed to delete these TSs when the reactor is in the permanently defueled condition. In place of these TSs, the licensee proposed to include License Condition 2.C.(5) to prohibit fuel cask movement in or over the SFP when irradiation fuel assemblies with less than 90 days decay time are in the SFP. As discussed, the analysis staff conducted for Amendment 226 determined that neither the fuel handling area ventilation system nor CRV filtration are required to be operable to meet the applicable dose criteria if the fuel assemblies in the pool have at least a 90-day decay time; as such, these systems are not required after 90 days. If casks are prohibited from being moved in or over the SFP when fuel that has decayed less than 90 days is in the pool, the licensee will continue to meet the criteria of 6.3 rem at the EAB and LPZ and the 5 rem CR dose limit. The licensee is still required to maintain other SFP safety features, such as pool water depth, in the permanently defueled condition. Based on staff's analysis for Amendment No. 226, the NRC staff finds the proposed changes in this LAR related to the cask drop accident to be acceptable.

#### 4.1.2 Fuel Handling Accident (FHA)

As discussed in Section 3.2 of this safety evaluation (SE), an analysis of the FHA utilizing the AST methodology described in RG 1.183 was previously approved by the NRC in license Amendment No. 226 on September 28, 2007. The FHA analysis evaluated changes to the TSs that resulted from implementation of an alternate radiological source term as permitted by 10 CFR 50.67 and allowed implementation of plant modifications to the containment air handling systems and the CR air handling systems related to the use of the AST.

The FHA analysis evaluates an FHA in the reactor cavity and in the SFP. After the reactor has been completely defueled following permanent shut down, an FHA in the reactor cavity is no longer a credible accident. The FHA DBA in the SFP is applicable when PNP is in a permanently shut down and defueled condition. In the LAR, the licensee's analysis applied the AST methodology outlined in RG 1.183 to determine the radiological consequences to operators in the CR and the public as a function of time after shutdown. Most of the assumptions for the FHA remain the same as those approved in license Amendment No. 226. The differences between Amendment No. 226 and the current LAR are that, for the current LAR, isolation of the CR ventilation system and radioactivity removal of the ventilation systems are no longer credited and an additional decay time of the fuel at the time of the accident (17 days total decay) is included in the new analysis. The overall iodine decontamination factor (DF) and the supporting atmospheric dispersion calculations are consistent with the assumptions and methodology approved in license Amendment No. 226.

The FHA is defined as the dropping of a single spent fuel assembly in the SFP during fuel handling activities resulting in the perforation of all rods in that assembly. The assembly activity inventory is based on the at-power core average power level with an additional radial peaking factor 2.04 times. The gap activity in the damaged rods is instantaneously released into the SFP. The water level in the SFP is maintained a minimum of 22.5 feet above the top of the damaged fuel assemblies in the SFP. TS 3.7.14, "Spent Fuel Pool (SFP) Water Level," ensures that this water level is maintained. The SFP water level limit specified in TS 3.7.14 will be maintained in the permanently defueled condition. Consistent with the methodology in RG 1.83,

radionuclide release fractions are assumed to be consistent with the values in Table 3 of RG 1.183. Further, all particulates are assumed to be retained in the SFP water, noble gases are assumed to escape freely from the SFP water to the environment, and a DF of 183.07 is applied to halogens. This methodology is consistent with RG 1.183 and was found to be acceptable in license Amendment No. 226.

The activity released is assumed to be discharged to the environment outside the building within 2 hours, assuming the limiting release point and bounding atmospheric dispersion factors. As mentioned above, no credit is taken for removal of iodine by filters nor is credit taken for isolation of the release path. Doses to main CR personnel are calculated assuming normal control room and fuel handling area ventilation system alignments, and unfiltered air is assumed to exhaust through the stack from the SFP ventilation for the entirety of the event. The licensee performs the analysis 17 days after the reactor has been shutdown, crediting 17 days of radioactive decay. The post-shutdown technical specifications will not come into effect until 17 days after shutdown. Before this time, the current operational requirements, including operational TSs, will remain in effect, ensuring adequate safety.

The analysis in the LAR demonstrates that the dose consequences of the FHA will remain below the current licensing basis dose limits, without crediting isolation or radionuclide removal through the ventilation systems, providing that the 22.5 foot water depth is in place and there are 17 days of decay time following shut down. With these assumptions, the licensee determined that the worst-case 2-hour dose at the EAB is less than 1 rem TEDE and the 30-day integrated dose to an operator in the control room is less than 5 rem TEDE. The licensee concludes that the ratio of the dispersion factors is such that the dose at the LPZ will be much lower than the calculated dose at the EAB, given that release occurs over the first 2 hours. These dose values are less than the limits required by 10 CFR 50.67 and the criteria specified in RG 1.183.

In performing its review, the NRC staff relied upon information provided by the licensee and NRC staff experience in performing similar reviews. The NRC staff performed independent analysis using the RADTRAD computer code and concludes that the dose consequence from an FHA for the permanently defueled PNP meets the applicable radiological dose criteria at the EAB and in the CR. The LPZ dose was significantly less than the EAB dose in license Amendment No. 226 and the EAB dose decreased in the permanently defueled case. In addition, the atmospheric dispersion factors, release timing, and filtration assumptions are the same in both the EAB and LPZ scenarios. As a result, the LPZ dose in the permanently defueled condition would be expected to be lower than in license Amendment No. 226. Therefore, the NRC staff finds the licensee's conclusion that the LPZ dose would be less than the EAB dose to be acceptable. The NRC staff concludes that the dose consequence from an FHA for the permanently defueled PNP meets the applicable radiological dose criteria at the EAB, LPZ, and in the CR.

#### 4.1.3 Accidental Release of Waste Liquid

A liquid tank failure remains a viable accident following the reactor being permanently defueled since liquid tanks may continue to store radioactive liquid. Section 14.20 of the PNP UFSAR discusses liquid tank failures. The accidents discussed in the UFSAR include an accidental discharge to the circulating water discharge canal following a rupture of the volume control tank and the failure of the primary system makeup storage tank or the utility water storage tank. The primary makeup storage tank and the utility water storage tank have administrative controls that maintain tank activity concentration such that 10 CFR 20 dose limits would not be exceeded in

the event of a tank failure. These concentration limits will be maintained in the permanently defueled condition. The liquid contents of a spills in the auxiliary building and containment will be contained by the floor drains and sumps, including from a volume control tank rupture, which has not changed from normal operation. Accidental discharge of radioactive liquid, in excess of limits following a volume control tank rupture or other event will continued to be controlled by administrative process, system design, and system monitoring, as during normal operation. Since the same controls remain in place in permanently defueled condition as were credited during normal operation, the staff found the controls to be acceptable.

#### 4.1.4 Accidental Release of Waste Gas

Section 14.21 of the PNP UFSAR provides an evaluation of tank ruptures associated with storage of radioactive waste. Tanks accumulating significant quantities of radioactive gases during operation are the volume control tank and the gas decay tanks. The volume control tank accumulates gases over a core cycle by stripping action of the entering spray. The six gas decay tanks collect contain compressed radioactive gases collected from the waste gas surge tank which collects gases vented from the primary coolant system, the volume control tank, and the liquid waste system.

The waste gas decay tank failure in UFSAR Section 14.21.1 considers a tank failure immediately after filling a tank with the reactor operating with 1 percent failed fuel. The release travels unfiltered from the building to the atmosphere without crediting any active components or filtration to mitigate the consequences of the event. The CRV is credited for isolating in the analysis discussed in UFSAR Section 14.21, but since the only radioactivity released from the gas decay tanks are noble gases, there is no credit for filtering or radionuclide removal by the ventilation system. The licensee indicates that since the atmospheric dispersion coefficients and the source term for the revised FHA bound those of the design basis waste gas decay tank failure, that the gas decay tank failure meets applicable requirements during the permanently defueled condition.

The NRC staff reviewed the waste gas decay tank failure analysis discussed in the UFSAR and the information provided in the June 1, 2021, application and performed a confirmatory analysis. Since there was no credit for filtration or removal of the radionuclides before release to the atmosphere, the only change to the EAB and LPZ dose following permanent defueling would be due to additional radionuclide decay. Therefore, the NRC staff concludes that the EAB and LPZ doses would be lower following permanently defueling. Since the source term and the atmospheric dispersion coefficients for the FHA bound those of the waste gas decay tank failure, the doses for the FHA will be bounding. The NRC staff also performed confirmatory calculations and concludes that the doses to the CR will remain well below the 5 rem dose acceptance criteria following a waste gas decay tank failure. As a result, the NRC staff finds the permanently defueled waste gas decay tank failure analysis to be acceptable.

The volume control tank rupture accident is discussed in UFSAR Section 14.21.2. The licensee indicates in the June 1, 2021, application that the volume control tank rupture accident is no longer applicable in the permanently defueled condition because primary coolant letdown will no longer be required to support primary coolant system operation. In addition, inputs into the volume control tank rupture accident discussed in UFSAR Section 14.21.2, such as letdown flow and dose equivalent iodine-131 requirements will no longer be applicable in the permanently defueled condition. The NRC staff confirms that the assumptions for the volume control tank rupture accident, as described in the UFSAR, are no longer applicable. In the event that the volume control tank continues to hold reactor coolant fluid in the permanently defueled

condition, the source term would be lower than during normal operation due to radioactive decay. In addition, the primary coolant iodine and noble gas concentrations released to the atmosphere from the volume control tank after 17 days of decay would be significantly less than the source term from the FHA with 17 days of decay and the CR doses from the FHA. In reviewing UFSAR Chapter 14.21.2, the radioactive concentrations from a volume control tank rupture would be released to the auxiliary building with no filtration assumed in the current licensing basis or in the permanently defueled condition. Releases from the auxiliary building stack would have atmospheric dispersion factors that were the same or bounded by those used for the FHA. Accordingly, the NRC staff concludes that a volume control tank rupture following 17 days of reactor coolant system fluid decay would not result in doses exceeding EAB, LPZ, or CR dose criteria.

#### 4.1.5 Accident Analysis Conclusions

The NRC staff reviewed the assumptions, inputs, and methods used by the licensee to assess the radiological impacts of the proposed changes. The staff finds that the licensee's proposed changes use analysis methods and assumptions consistent with the guidance contained in RG 1.183. The staff compared the doses estimated by the licensee to the applicable criteria and to the results of confirmatory analyses by the staff. The staff finds that there is reasonable assurance that PNP, as modified by the proposed amendment, will continue to provide sufficient safety margins with adequate defense-in-depth to address unanticipated events and to compensate for uncertainties in accident progression and in analysis assumptions and parameters. The staff concludes that the licensee has demonstrated that the dose consequences for postulated accidents at the permanently shutdown and defueled plant would not have consequences that could potentially exceed the 10 CFR 50.67 dose limits and RG 1.183 dose acceptance criteria or approach the EPA PAG criteria of 1 rem TED after a 90-day fuel decay period prior to fuel movement. Therefore, the NRC staff finds the proposed changes to be acceptable from a dose consequence perspective.

#### 4.2 Proposed Changes to the Renewed Facility Operating License

##### 4.2.1 License Condition 1.B

Currently, License Condition 1.B reads:

Construction of the Palisades Plant (the facility) has been completed in conformity with Provisional Construction Permit No. CPPR-25 and the application, as amended, the provisions of the Act, and the regulations of the Commission, and has been operating under facility operating license since February 21, 1991;

The licensee proposed to delete License Condition 1.B because the decommissioning of PNP does not depend on the conformity with Provisional Construction Permit No. CPPR-25. By letter dated August 28, 1970 (ADAMS Accession No. ML020790210), the Atomic Energy Commission issued an order extending the latest completion date of the Provisional Construction Permit No. CPPR-25 to December 31, 1970. By letter dated February 21, 1991 (ADAMS Accession No. ML020810482), the Atomic Energy Commission issued Facility Operating License No. DPR-20 to the licensee for operation of PNP. Therefore, Provisional Construction Permit No. CPPR-25 was superseded by Facility Operating License No. DPR-20. Accordingly, the NRC staff finds it acceptable to delete License Condition 1.B.

#### 4.2.2 License Condition 2

Currently, License Condition 2 reads:

Operating License No. DPR-20, dated February 21, 1991, as amended, was superseded in its entirety by Renewed Facility Operating License No. DPR-20 (previously issued to Consumer Energy Company), is hereby issued to ENP and ENO as follows:

The licensee proposed License Condition 2 to read:

Renewed Facility Operating License No. DPR-20 is hereby issued to ENP and ENO as follows:

The simplification of the wording is editorial in nature and does not change any technical content. The NRC staff finds this change acceptable.

#### 4.2.3 License Condition 2.B.(1)

Currently, License Condition 2.B.(1) reads:

Pursuant to Section 104b of the Act, as amended, and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," (a) ENP to possess and use, and (b) ENO to possess, use, and operate, the facility at the designated location in Van Buren County, Michigan, in accordance with the procedures and limitation set forth in this license;

The licensee proposed License Condition 2.B.(1) to read:

Pursuant to Section 104b of the Act, as amended, and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," (a) ENP to possess and use, and (b) ENO to possess and use, the facility at the designated location in Van Buren County, Michigan, in accordance with the procedures and limitation set forth in this license;

Consistent with 10 CFR Part 50.82(a)(2), the PNP license will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel. The facility would remain authorized to possess the existing spent fuel and use the systems required to support safe fuel storage (e.g., the SFP) during the decommissioning period in accordance with the specified limitations for storage. The removal of the term "operating" would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff approves the proposed change to License Condition 2.B.(1).

#### 4.2.4 License Condition 2.B.(2)

Currently, License Condition 2.B.(2) reads:

ENO, pursuant to the Act and 10 CFR Parts 40 and 70, to receive, possess, and use source and special nuclear material that was used as reactor fuel, in accordance with the limitations for storage and amounts required for reactor

operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended;

The licensee proposed License Condition 2.B.(2) to read:

ENO, pursuant to the Act and 10 CFR Parts 40 and 70, to possess source and special nuclear material that was used as reactor fuel, in accordance with the limitations for storage, as described in the Updated Final Safety Analysis Report, as supplemented and amended;

The proposed change to this license condition would remove the authorization for receipt and use of special nuclear material (SNM) as reactor fuel. It would eliminate the reference to use of the SNM for reactor operations and limit the possession of SNM to SNM "that was used" as reactor fuel. Pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license for PNP will no longer authorize operation of the reactor. As such, PNP has no need to receive SNM in the form of reactor fuel and cannot use SNM as reactor fuel for reactor operations. The continued authorization to possess SNM "that was used" as reactor fuel is necessary, as PNP possesses reactor fuel that was used for past operations. Therefore, the NRC staff approves the proposed change to License Condition 2.B.(2).

#### 4.2.5 License Condition 2.B.(3)

Currently, License Condition 2.B.(3) reads:

ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use byproduct, source, and special nuclear material as sealed sources for reactor startup, reactor instrumentation, radiation monitoring equipment calibration, and fission detectors in amounts as required;

The licensee proposed License Condition 2.B.(3) to read:

ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use byproduct, source, and special nuclear material as sealed sources that were used for reactor startup, sealed sources that were used for reactor instrumentation and are used in the calibration of radiation monitoring equipment, and that were used as fission detectors in amounts as required;

The proposed change to this license condition removes the authorization for receipt, possession, and use of byproduct, source, and SNM as sealed neutron sources for reactor startup, but retains authorization to possess such sources previously used for reactor startup. The deletion of the authorization to receive and use sources for reactor startup is consistent with the fact that PNP will no longer be authorized to operate, and the continued authorization to possess neutron sources that were used for reactor startup is consistent with the safe storage of byproduct, source, and SNM. The use of sources for radiation monitoring will continue to be required. Since the PNP license will no longer authorize operation of the facility pursuant to 10 CFR 50.82(a)(2), this license condition is consistent with the requirements associated with the decommissioning plant. Therefore, the NRC staff approves the proposed change to License Condition 2.B.(3).

#### 4.2.6 License Condition 2.B.(5)

Currently, License Condition 2.B.(5) reads:

ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operations of the facility;

The licensee proposed License Condition 2.B.(5) to read:

ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials that were produced by the operations of the facility;

This license condition is proposed for revision to allow possession, but not separation, of byproduct, source, and SNM “that were” produced by the operation of the facility, as opposed to those materials “as may be” produced by the operation of the facility. Since the PNP license will no longer authorize operation of the facility pursuant to 10 CFR 50.82(a)(2), this license condition is consistent with the requirements associated with the decommissioning plant. Therefore, the NRC staff finds the proposed change to License Condition 2.B.(5) acceptable.

#### 4.2.7 License Condition 2.C

Currently, License Condition 2.C reads:

This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission’s regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act; to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

The licensee proposed License Condition 2.C to read:

This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission’s regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act; to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

Consistent with 10 CFR Part 50.82(a)(2), the PNP license will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel. The removal of the discussion of “operating” license would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff approves the proposed change to License Condition 2.C.

#### 4.2.8 License Condition 2.C.(1)

Currently, License Condition 2.C.(1) reads:

ENO is authorized to operate the facility at steady-state reactor core power levels not in excess of 2565.4 Megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

The licensee proposed to delete License Condition 2.C.(1). Once ENO docket the PNP certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel, reference to operation of the facility would be inconsistent with 10 CFR 50.82(a)(2).

The NRC staff reviewed the proposed deletion of License Condition 2.C.(1) and determined that operation would not be authorized at PNP at any power level since its 10 CFR 50.82(a)(1) certifications were docketed. Therefore, the NRC staff finds the proposed deletion of License Condition 2.C.(1) acceptable.

#### 4.2.9 License Condition 2.C.(2)

Currently, License Condition 2.C.(2) reads:

The Technical Specifications contained in Appendix A, as revised through Amendment No. 271, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The licensee proposed License Condition 2.C.(2) to read:

The Technical Specifications contained in Appendix A, as revised through Amendment No. 272, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. ENO shall maintain the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

Consistent with 10 CFR Part 50.82(a)(2), the PNP license will no longer authorize operation of the reactor or emplacement or retention of fuel into the reactor vessel. This license condition is proposed for revision to account for the permanently defueled condition of the facility and to incorporate the permanently defueled TSs. The license condition is changed from "operate the facility" to "maintain the facility," which describes the permanently defueled condition in which the PNP license will no longer authorize the use of the facility for power operation. Therefore, the NRC staff finds the proposed change to License Condition 2.C.(2) acceptable.

#### 4.2.10 License Condition 2.C.(3), "Fire Protection"

Currently, License Condition 2.C.(3) reads, in part:

ENO shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment requests dated December 12, 2012,



November 1, 2017, November 1, 2018, and March 8, 2019, as supplemented by letters dated February 21, 2013, September 30, 2013, October 24, 2013, December 2, 2013, April 2, 2014, May 7, 2014, June 17, 2014, August 14, 2014, November 4, 2014, December 18, 2014, January 24, 2018, and May 28, 2019, as approved in the safety evaluations dated February 27, 2015, February 27, 2018, and August 20, 2019. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied ... .

[...]

... will be completed once the related modifications are installed and validated in the PRA model.

The licensee proposed to delete License Condition 2.C.(3). The licensee stated that after the certifications required by 10 CFR 50.82(a)(1) are docketed for PNP, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). As a result, the current fire protection program (FPP) that complies with 10 CFR 50.48(a) and 10 CFR 50.48(c) as prescribed in License Condition 2.C.(3) will no longer be applicable. Instead, licensees that have submitted the certifications required under 10 CFR 50.82(a)(1) are required to maintain an FPP in accordance with 10 CFR 50.48(f) to reflect the facility conditions and activities during decommissioning and to address the potential for fires that could cause the release or spread of radioactive materials. The licensee also stated that it will continue to utilize the defense-in-depth concept, placing special emphasis on detection and suppression in order to minimize radiological releases to the environment.

The NRC staff finds that License Condition 2.C.(3) for PNP is based on maintaining a FPP that complies with 10 CFR 50.48(a) and (c). Compliance with 10 CFR 50.48(c) is no longer applicable to the decommissioned FPP at PNP once the facility is permanently shut down and the fuel has been permanently removed from the reactor. However, elements of the FPP will continue during decommissioning to address fire events that could result in radiological hazards. 10 CFR 50.48(f) requires PNP to address the potential for fires, which could result in a radiological hazard. Therefore, a license condition that also requires FPPs for a permanently shutdown and defueled unit is redundant. Based on the above, the NRC staff concludes that reliance on 10 CFR 50.48(f) is appropriate and that the licensee's request to delete License Condition 2.C.(3) is acceptable.

#### 4.2.11 License Condition 2.C.(4)

Currently, License Condition 2.C.(4) reads:

The following requirements shall apply to control rod drive [CRD] CRD-13 during cycle 25:

- (a) Performance of Technical Specifications Surveillance Requirement SR 3.1.4.3 is not required for CRD-13 until the next entry into Mode 3.
- (b) Seal leakage on CRD-13 shall be repaired prior to entering Mode 2, following the next Mode 3 entry.
- (c) The reactor shall be shut down if CRD-13 seal leakage exceeds two gallons per minute.

The licensee proposed to delete License Condition 2.C.(4).

By letter dated October 28, 2016 (ADAMS Accession No. ML16281A498), the NRC issued Amendment No. 260 to PNP. This amendment revised License Condition 2.C.(4) to the current wording. At the time of the amendment, SR 3.1.4.3 was required to be performed every 92 days, providing increased confidence that all full-length control rods continue to be trippable, even if they are not regularly tripped. However, exercising a control rod in accordance with the SR risked aggravating the seal degradation on CRD-13 existing at that time, causing excessive seal leakage, which could have resulted in an unplanned maintenance outage. ENO determined, and the NRC staff agreed, that the risk incurred due to an additional maintenance shutdown to repair CRD-13 was considered to be greater than the risk of continued full power operation with CRD-13 no longer being exercised every 92 days during cycle 25.

License Condition 2.C.(4) is a requirement that was previously met; therefore, the deletion of License Condition 2.C.(4) does not change any technical content. The NRC staff finds the deletion of License Condition 2.C.(4) acceptable.

#### 4.2.12 License Condition 2.C.(5)

The licensee proposed a new License Condition 2.C.(5) that reads:

Movement of a fuel cask in or over the spent fuel pool is prohibited when irradiated fuel assemblies decayed less than 90 days are in the spent fuel pool.

As discussed in Section 4.1.1 of this SE, TS 3.7.10 and TS 3.7.12 are in place to ensure that the consequences of a cask drop accident did not exceed the accident dose criteria. The licensee proposed to delete these TSs when the reactor is in the permanently defueled condition. In place of these TSs, the licensee proposed to include License Condition 2.C.(5) to prohibit fuel cask movement in or over the SFP when irradiation fuel assemblies with less than 90 days decay time are in the SFP.

If casks are prohibited from being moved in or over the SFP, then a cask drop accident into the SFP is not possible. As discussed in license Amendment No. 226, after 90 days neither the fuel handling area ventilation system nor CR ventilation filtration are required to meet the dose criteria of 6.3 rem at the EAB and LPZ and the 5 rem control room dose limit. Other SFP safety

features, such as pool water depth, continue to be required to be maintained in the permanently defueled condition and the analysis in license Amendment No. 226 remains valid, after the required 90-day decay time. Therefore, License Condition 2.C.(5) is necessary to ensure that radiological dose criteria are not exceeded. Therefore, the NRC staff finds the addition of License Condition 2.C.(5) acceptable.

#### 4.2.13 License Condition 2.C.(7)

Currently, License Condition 2.C.(2) reads:

Upon implementation of Amendment 230 adopting TSTF-448, revision 3, the determination of control room envelope (CRE) unfiltered air leakage as required by SR 3.7.10.4, in accordance with TS 5.5.16.c.(i), the assessment of CRE habitability as required by Specification 5.5.16.c.(ii), and the measurement of CRE pressure as required by TS 5.5.16.d, shall be considered met. Following implementation:

- (a) The first performance of SR 3.7.10.4, in accordance with TS 5.5.16.c.(i), shall be within the specified Frequency of six years, plus the 18-month allowance of SR 3.0.2, as measured from June 26, 2007, the date of the most recent successful tracer gas test, as stated in the August 16, 2007, letter response to Generic Letter 2003-01.
- (b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.16.c.(ii), shall be within three years, plus the nine-month allowance of SR 3.0.2, as measured from June 26, 2007, the date of the most recent successful tracer gas test, as stated in the August 16, 2007, letter response to Generic Letter 2003-01.
- (c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.16.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from July 16, 2007, the date of the most recent successful pressure measurement test.

The licensee proposed to delete License Condition 2.C.(7). The proposed change would remove the requirements of Technical Specifications Task Force (TSTF)-448, "Control Room Habitability," which involves assessing the CRE habitability at the frequencies specified in Sections C.1 and C.2 of RG 1.197, Revision 0, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," dated May 2003 (ADAMS Accession No. ML031490664). The licensee proposed to not retain this license condition in the proposed PDTS, as it is a license condition which has been met, and the associated test, assessment, and measurement of the defined TSTF-448 requirements were completed in accordance with the schedule specified in

the license condition. As such, this license condition no longer serves a regulatory purpose. Therefore, the NRC staff finds the deletion of License Condition 2.C.(7) acceptable.

#### 4.2.14 License Condition 2.C.(8)

Currently, License Condition 2.C.(2) reads:

Amendment 257 authorizes the implementation of 10 CFR 50.61a in lieu of 10 CFR 50.61.

The licensee proposed to delete License Condition 2.C.(8). By letter dated November 23, 2015 (ADAMS Accession No. ML15209A791), the NRC issued Amendment No. 257 to PNP. The licensee stated that after the certifications required by 10 CFR 50.82(a)(1) are docketed for PNP, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). The regulation at 10 CFR 50.60(a) stipulates that reactor facilities for which the certifications required under 10 CFR 50.82(a)(1) have been submitted no longer need to meet the fracture toughness and material surveillance program requirements for the reactor coolant pressure boundary set forth in 10 CFR Part 50, Appendices G and H. As such, this license condition no longer serves a regulatory purpose. Therefore, the NRC staff finds the deletion of License Condition 2.C.(8) acceptable.

#### 4.2.15 License Condition 2.D

Currently, License Condition 2.D reads:

The facility has been granted certain exemptions from Appendix J to 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors." This section contains leakage test requirements, schedules and acceptance criteria for tests of the leak-tight integrity of the primary reactor containment and systems and components which penetrate the containment. These exemptions were granted in a letter dated December 6, 1989.

These exemptions granted pursuant to 10 CFR 50.12, are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security. With these exemptions, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

The licensee proposed to delete License Condition 2.D. On December 6, 1989, the NRC granted exemptions to PNP from certain requirements in Appendix J to 10 CFR Part 50 (ADAMS Accession No. ML020810486). The exemptions provide partial relief from the requirement of Paragraph III.D.2.(b)(ii) to leak test at or above the calculated DBA peak containment pressure. The only remaining DBAs will be the postulated cask drop accidents, the FHA in the fuel handling building, accidental release-recycle of waste liquid, and the accidental release of waste gas.

After the docketed certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel are submitted to the NRC in accordance with

10 CFR 50.82(a)(1)(i) and (ii), the 10 CFR Part 50 license will no longer permit operation of the reactor or placement of fuel in the reactor vessel in accordance with 10 CFR 50.82(a)(2). The containment will not play a role in mitigating the consequences of the remaining DBAs discussed in Section 4.0 of this SE and the license condition will no longer serve any regulatory purpose. Therefore, the NRC staff finds the deletion of License Condition 2.D acceptable.

#### 4.2.16 License Condition 2.H

Currently, License Condition 2.H reads:

The Updated Safety Analysis Report supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be included in the next scheduled update to the Updated Safety Analysis Report required by 10 CFR 50.71(e)(4) following the issuance of this renewed operating license. Until that update is complete, ENO may make changes to the programs and activities described in the supplement without prior Commission approval, provided that ENO evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

The licensee proposed to delete License Condition 2.H. This license condition was issued concurrent with the RFOL on January 17, 2007. This license condition is described in Section 1.7, "Summary of Proposed License Conditions," of NUREG-1871, "Safety Evaluation Report Related to the License Renewal of Palisades Nuclear Plant," issued January 2007 (ADAMS Accession No. ML070600578).

This license condition is a one-time requirement to include the UFSAR supplement required by 10 CFR 54.21(d) in the next UFSAR update as required by 10 CFR 50.71(e) and allows changes to be made to that supplement under the provisions of 10 CFR 50.59 until the UFSAR update is completed. PNP UFSAR, Revision 28, which adds a discussion for the License Renewal Application, was submitted to the NRC on October 29, 2009 (ADAMS Accession No. ML100320678). This action satisfied the requirements of PNP License Condition 2.H; therefore, the NRC staff finds the deletion of License Condition 2.H acceptable.

#### 4.2.17 License Condition 2.I

Currently, License Condition 2.I reads:

The Updated Safety Analysis Report supplement, as revised, describes certain future activities to be completed prior to the period of extended operation. ENO shall complete these activities no later than March 24, 2011, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

The licensee proposed to delete License Condition 2.I. This license condition was issued concurrent with the RFOL on January 17, 2007. This license condition is described in Section 1.7, "Summary of Proposed License Conditions," of NUREG-1871, "Safety Evaluation Report Related to the License Renewal of Palisades Nuclear Plant," issued January 2007 (ADAMS Accession No. ML070600578).

This license condition is a one-time requirement for ENO to complete identified commitments prior to PNP entering into the period of extended operation on

March 24, 2011. By letter dated March 23, 2011 (ADAMS Accession No. ML110830011), the licensee provided notification that ENO had completed implementation of these activities. This action satisfied the requirements of PNP License Condition 2.I; therefore, the NRC staff finds the deletion of License Condition 2.I acceptable.

#### 4.2.18 License Condition 2.J

Currently, License Condition 2.J reads:

All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of American Society for Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. Any changes to the capsule withdrawal schedule, including spare capsules, must be approved by the NRC prior to implementation. All capsules placed in storage must be maintained for future insertion. Any changes to storage requirements must be approved by the NRC, as required by 10 CFR Part 50, Appendix H.

The licensee proposed to delete License Condition 2.J. This license condition was issued concurrent with the RFOL on January 17, 2007. This license condition is described in Section 1.7, "Summary of Proposed License Conditions," of NUREG-1871, "Safety Evaluation Report Related to the License Renewal of Palisades Nuclear Plant," issued January 2007 (ADAMS Accession No. ML070600578).

The regulation 10 CFR Part 50, Appendix H, requires that the design of the reactor vessel surveillance capsule program and withdrawal schedules meet the requirements in the version of American Society for Testing and Materials (ASTM) Standard Practice E 185 that is current on the issue date of the American Society of Mechanical Engineers (ASME) Code to which the reactor pressure vessel (RPV) was purchased. The rule also requires the licensee to perform capsule testing and to report the test results in accordance with the requirements of ASTM E 185-82 to the extent practicable for the configuration of the test specimen in the RPV surveillance capsules.

The requirements in 10 CFR Part 50, Appendix H, are only relevant to nuclear power plants that are authorized to operate in the reactor-critical operating mode because that is the plant operating mode that produces high energy neutrons as a result of the reactor's nuclear fission process, and the requirements are set in place to provide assurance that the RPV will maintain adequate levels of fracture toughness throughout the operating life of the reactor. This license condition was imposed with the assumption that PNP would be operating for an additional 20 years (i.e., to and inclusive of March 24, 2031) and would not be proposing to end power operations of the facility prior to that date.

This license condition is proposed for deletion in its entirety to reflect the permanently defueled condition of the facility once the certification of permanent removal of fuel from the reactor vessel is submitted. Continued implementation of the applicable surveillance capsule testing and reporting requirements is no longer necessary for PNP because ENO has decided to permanently cease power operations at PNP, and from a fracture toughness perspective, the PNP RPV will cease to be exposed to further irradiation by high energy neutrons or subjected to any high thermal stress environments. Further, 10 CFR 50.60(a) stipulates that reactor facilities for which the certifications required under 10 CFR 50.82(a)(1) have been submitted no longer

need to meet the fracture toughness and material surveillance program requirements for the reactor coolant pressure boundary set forth in 10 CFR Part 50, Appendices G and H.

The physical and radiological control of the remaining surveillance capsules that are located in the RPV will be managed in accordance with the applicable radiological control requirements of 10 CFR Part 20 and with any applicable security or physical protection requirements for components in either 10 CFR Part 37 or 10 CFR Part 73. Therefore, the removal, testing, reporting, and storage requirements for reactor vessel surveillance capsules and their test specimens do not need to be implemented further once PNP permanently ceases power operations. There will no longer be any need to remove the remaining surveillance capsules from the RPV or perform material testing of the test specimens in those capsules.

Based on its review of the proposed deletion, the NRC staff concludes that continued implementation of the applicable surveillance capsule testing and reporting requirements is no longer necessary for PNP because power operation is no longer authorized at PNP once the 10 CFR 50.82(a)(1) certifications have been docketed. Further, from a fracture toughness perspective, the PNP RPV will cease to be exposed to further irradiation by high energy neutrons or subjected to any high thermal stress environments. Therefore, the NRC staff finds the deletion of License Condition 2.J acceptable.

#### 4.2.19 License Condition 2.K

Currently, License Condition 2.K reads:

This license is effective as of the date of issuance and shall expire at midnight on March 24, 2031.

The licensee proposed License Condition 2.K to read:

This license is effective as of the date of issuance and until the Commission notifies the licensee in writing that the license is terminated.

The proposed change would modify this license condition to reflect the permanently shutdown and defueled condition of the facility. Consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. The proposed change would revise License Condition 2.K to conform with 10 CFR 50.51, "Continuation of license," in that the license authorizes ownership and possession by ENO until the Commission notifies the licensee in writing that the license is terminated.

The NRC staff reviewed the proposed change to License Condition 2.K. The current License Condition 2.K, which documents the date of the expiration of the RFOL, is no longer necessary for the permanently shutdown and defueled condition of the facility in the process of decommissioning. The revised License Condition 2.K documents the current condition of the facility and summarizes the actions and requirements applicable to the facility by 10 CFR 50.51. Therefore, the NRC staff finds the proposed change to License Condition 2.K acceptable.

#### 4.3 Changes to Appendix A, Technical Specification

##### 4.3.1 Title Page

The current title page states, in part:

RENEWED FACILITY OPERATING LICENSE DPR-20  
APPENDIX A  
TECHNICAL SPECIFICATIONS

The licensee proposed to change the title page to state, in part:

RENEWED FACILITY OPERATING LICENSE DPR-20  
APPENDIX A  
PERMANENTLY DEFUELED TECHNICAL SPECIFICATIONS

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel, and this proposed change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the proposed changes are consistent with 10 CFR 50.82(a)(2) and are acceptable to the NRC staff.

##### 4.3.2 Table of Contents

The licensee proposed to revise the Table of Contents to reflect proposed additions, deletions, and changes to the TSs, as described in Sections 4.3.3 through 4.3.8 of this SE, and as detailed in Attachment 1 to the application dated June 1, 2021. The changes to the Table of Contents are editorial and do not change any technical content. The NRC staff finds the changes to the Table of Contents acceptable.

##### 4.3.3 TS Section 1.0, "Use and Application"

The licensee requested to maintain the definitions for "Certified Fuel Handler" and "Non-certified Operator," which were proposed for addition in its July 27, 2017, application (ADAMS Accession No. ML17208A428), that included changes to the Administrative Controls Section of the TSs.

The licensee proposed deletion of the following definitions since the terms are not used in any PDTS specification and do not apply to a facility in the permanently defueled condition. In addition to the definitions listed below, the licensee proposed deletion of Table 1.1-1, "MODES."

###### 4.3.3.1 TS Section 1.1, "Definitions"

The licensee proposed to delete the following definitions in TS Section 1.1, which currently state:

AVERAGE DISINTEGRATION ENERGY  $\bar{E}$

$\bar{E}$  shall be the average (weighted in proportion to the concentration of each radionuclide in the primary coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other



than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.

#### AXIAL OFFSET (AO)

AO shall be the power generated in the lower half of the core less the power generated in the upper half of the core, divided by the sum of the power generated in the lower and upper halves of the core (determined using the incore monitoring system).

#### AXIAL SHAPE INDEX (ASI)

ASI shall be the power generated in the lower half of the core less the power generated in the upper half of the core, divided by the sum of the power generated in the lower and upper halves of the core (determined using the excore monitoring system).

#### CHANNEL CALIBRATION

A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST.

Calibration of instrument channels with Resistance Temperature Detector (RTD) or thermocouple sensors may consist of an in-place qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel.

Whenever a RTD or thermocouple sensing element is replaced, the next required CHANNEL CALIBRATION shall include an in-place cross calibration that compares the other sensing elements with the recently installed sensing element.

The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

#### CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

#### CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be:

- a. Analog and bistable channels - the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify

OPERABILITY, of all devices in the channel required for channel OPERABILITY;

- b. Digital channels - the use of diagnostic programs to test (continued) digital hardware and the injection of simulated process data into the channel to verify OPERABILITY, of all devices in the channel required for channel OPERABILITY.

The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

#### CORE ALTERATION

CORE ALTERATION shall be the movement of any fuel, sources, or control rods within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

#### CORE OPERATING LIMITS REPORT (COLR)

The COLR is the plant specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.

#### DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion and Ingestion," 1989; (Table 2.1, Exposure-to-Dose Conversion Factors for Inhalation).

#### INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

#### LEAKAGE

LEAKAGE shall be:

- a. Identified LEAKAGE
  1. LEAKAGE, such as that from pump seals or valve packing (except Primary Coolant Pump seal water leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; and
3. Primary Coolant System (PCS) LEAKAGE through a Steam Generator to the Secondary System (primary to secondary LEAKAGE).

b. Unidentified LEAKAGE

All LEAKAGE (except Primary Coolant Pump seal leakoff) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an PCS component body, pipe wall, or vessel wall.

#### MODE

A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average primary coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.

#### OPERABLE – OPERABILITY

A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

#### PHYSICS TESTS

PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:

- a. Described in Chapter 13, Initial Tests and Operation, of the FSAR;
- b. Authorized under the provisions of 10 CFR 50.59; or
- c. Otherwise approved by the Nuclear Regulatory Commission.

#### QUADRANT POWER TILT ( $T_q$ )

$T_q$  shall be the maximum positive ratio of the power generated in any quadrant minus the average quadrant power, to the average quadrant power.

#### RATED THERMAL POWER (RTP)

RTP shall be a total reactor core heat transfer rate to the primary coolant of 2565.4 MWt.

#### REFUELING BORON CONCENTRATION

REFUELING BORON CONCENTRATION shall be a Primary Coolant System boron concentration of  $\geq 1720$  ppm and sufficient to assure the reactor is subcritical by  $\geq 5\%$   $\Delta\rho$  with all control rods withdrawn

#### SHUTDOWN MARGIN (SDM)

SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming:

- a. All full length control rods (shutdown and regulating) are fully inserted except for the single rod of highest reactivity worth, which is assumed to be fully withdrawn. However, with all full length control rods verified fully inserted by two independent means, it is not necessary to account for a stuck rod in the SOM calculation. With any full length control rods not capable of being fully inserted, the reactivity worth of these rods must be accounted for in the determination of SDM; and
- b. There is no change in part length rod position.

#### STAGGERED TEST BASIS

A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during  $n$  Surveillance Frequency intervals, where  $n$  is the total number of systems, subsystems, channels, or other designated components in the associated function.

#### THERMAL POWER

THERMAL POWER shall be the total reactor core heat transfer rate to the primary coolant.

#### TOTAL RADIAL PEAKING FACTOR ( $F_{RT}$ )

$F_{RT}$  shall be the maximum ratio of the individual fuel pin power to the core average pin power integrated over the total core height, including tilt.

The NRC staff examined the licensee's request to maintain the definitions for "Certified Fuel Handler" and "Non-certified Operator" and renumber them to place them in alphabetic order with the remaining TS definitions. The NRC staff finds that these terms apply to the safe storage and handling of spent fuel in the SFP and are to be retained in the PDTS, which were approved by the NRC in Amendment No. 266.

The NRC staff reviewed the TS definitions proposed for deletion and concludes that all of the terms listed above are only applicable to a reactor authorized to operate. Once PNP submits the docketed certifications required by 10 CFR 50.82(a)(1), the 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel, pursuant to 10 CFR 50.82(a)(2). Therefore, the NRC staff finds the deletion of these definitions from the TSs acceptable.

#### 4.3.3.2 TS Section 1.2, "Logical Connectors"

TS Section 1.2, "Logical Connectors," in the PNP TSs explains the meaning of logical connectors. The current description for TS Section 1.2 states, in part:

##### PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

##### BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

## EXAMPLES

The following examples illustrate the use of logical connectors.

### Example 1.2-1

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met	A.1 Verify ...  AND  A.2 Restore ...	

...  
Example 1.2-2...

The licensee proposed to modify the TSs to reflect the logical connectors that continue to exist in the TSs. Specifically, the purpose, background, and Example 1.2-1 sections are revised, as indicated below. Also, the licensee proposed to revise the current examples by making them a singular example and deleting Example 1.2-2.

The revised TS Section 1.2, "Logical Connectors," will state the following:

#### PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connector that appears in TS is AND. The physical arrangement of this connector constitutes logical conventions with specific meanings.

#### BACKGROUND

Levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action.)

EXAMPLE

The following example illustrates the use of logical connectors.

Example 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met	A.1 Suspend ...  AND  A.2 Initiate ...	

...  
[Example 1.2-2 is proposed for deletion]

The NRC staff examined the licensee’s proposal to modify the background, description, and examples of TS Section 1.2. Once the certifications required by 10 CFR 50.82(a)(1) are docketed for PNP, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). TSs 3.7.14, 3.7.15, and 3.7.16 are the only TSs that remain in the TSs that use logical connectors. As such, the NRC staff finds that the proposed changes are acceptable, as they are more closely aligned with the TSs remaining in the PDTs and reflect the permanently shutdown and defueled condition.

4.3.3.3 TS Section 1.3, “Completion Times”

TS Section 1.3, “Completion Times,” in the PNP TSs establishes the completion time convention and provides guidance for its use. The current background for TS Section 1.3 states the following:

Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the plant...

The licensee proposed to revise the background to replace the phrase “operation of the plant” with “storage and handling of spent nuclear fuel.” The revised background will state the following:

Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe storage and handling of spent nuclear fuel...

The current description for TS Section 1.3 states, in part:

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS

Condition unless otherwise specified, providing the plant is in a MODE or specified condition stated in the Applicability of the LCO.

Unless otherwise specified, the Completion time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The "otherwise specified" exceptions...

Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the plant is not within the LCO Applicability.

If situations are discovered...

The licensee proposed to revise the description to remove the terms "inoperable equipment" and "MODE", replace the terms "plant" with "facility" and "senior licensed operator" with "Certified Fuel Handler (CFH)", and remove the entire subsequent discussion of this section, starting from the phrase "The "otherwise specified" exceptions" and the phrase "If situations are discovered...". The revised description will state the following:

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the facility is in a specified condition stated in the Applicability of the LCO.

The Completion time begins when a Certified Fuel Handler (CFH) on the shift crew with responsibility for facility operations makes the determination that an LCO is not met and an ACTIONS Condition is entered.

Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the facility is not within the LCO Applicability.

The current examples for TS Section 1.3 state the following:

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

- Example 1.3-1...
- Example 1.3-2...
- Example 1.3-3...
- Example 1.3-4...
- Example 1.3-5...
- Example 1.3-6...
- Example 1.3-7...

The licensee proposed to revise the examples by making them a singular example, replacing the phrase "types of Conditions and changing Conditions" with "Required Actions," revising



Example 1.3-1, and deleting Examples 1.3-2 through 1.3-7. The revised example will state the following:

The following example illustrates the use of Completion Times with different Required Actions.

Example 1.3-1 is modified to address completion times as utilized by TS 3.7.14., TS 3.7.15 and TS 3.7.16.

The NRC staff examined the licensee's proposal to modify the background, description, and examples of TS Section 1.3. Once PNP permanently shuts down and defuels, (1) the primary mission will change from safe operation of the plant to the safe handling and storage of spent nuclear fuel, which is reflected in the revised background; (2) the license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel and, therefore, will no longer have operability requirements for any equipment, which is reflected in the revised description; and (3) the only TSs with completion times in the PDTs will be TS 3.7.14., TS 3.7.15 and TS 3.7.16, which are reflected in the revised example. The NRC staff reviewed the licensee's basis for the revisions to TS Section 1.3 and concludes that the proposed changes are acceptable, as they reflect the permanently shutdown and defueled condition, as well as the completion times that will continue to exist in the PDTs.

#### 4.3.3.4 TS Section 1.4, "Frequency"

TS Section 1.4, "Frequency," in the PNP TSs defines the proper use and application of frequency requirements. The current description for TS Section 1.4 states the following:

...  
The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0.2, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR as well as certain Notes in the surveillance column that modify performance requirements.

Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillances, or both.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria.

Some Surveillances contain notes that modify the Frequency of performance...

The licensee proposed to revise the description to state the following:

...  
The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0.2, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR.

The use of "met" or "performed" in these instances conveys specific meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met."  
"Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria.

The current examples for TS Section 1.4 state the following:

The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

Example 1.4-1...

Example 1.4-2...

Example 1.4-3...

Example 1.4-4...

Example 1.4-5...

Example 1.4-6...

The licensee proposed to revise the examples to remove references to frequencies, LCO applicability, and modes and replace with a statement that the examples illustrate the type of frequency statement in the TS. The licensee proposed to revise the language explaining the illustration of the example, revising Examples 1.4-1 and 1.4-2, and deleting Examples 1.4-3 through 1.4-6.

The revised example will state the following:

The following examples illustrate the type of Frequency statement that appears in the Technical Specifications (TS).

Example 1.4-1 is modified to address frequencies as utilized by TS 3.7.14 and TS 3.7.15.  
Example 1.4-2 is modified to address frequencies as utilized by TS 3.7.16.

The NRC staff examined the licensee's proposal to modify the description and examples of TS Section 1.4. Once the certifications required by 10 CFR 50.82(a)(1) are docketed for PNP, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). The only SRs that remain in the TSs are limited to those in TSs 3.7.14, 3.7.15, and 3.7.16. The revisions to TS Section 1.4 provide the rules of usage and examples that continue to be applicable to those

TSs. The NRC staff reviewed the licensee's provided basis for these revisions and concludes that the revisions are acceptable, as they reflect the maintenance of the facility after shutdown and defueling occur.

#### 4.3.4 TS Section 2.0, "Safety Limits [SLs]"

TS Section 2.0, "Safety Limits," in the PNP TSs contains SLs that are necessary to reasonably protect the integrity of certain physical barriers that guard against the uncontrolled release of radioactivity from the reactor core and the PCS pursuant to 10 CFR 50.36(c)(1).

The licensee proposed to delete TS 2.0, "Safety Limits (SLs)"; TS 2.1, "Safety Limits"; and TS 2.2, "Safety Limit Violations", in their entirety, since the SLs do not apply to a reactor that is in a permanently defueled condition. The SLs established in TS Section 2.1 prevent overheating of the fuel and possible cladding perforation, which would result in the release of fission products to the reactor coolant and protects the integrity of the RCS from overpressurization, thereby preventing the release of radionuclides contained in the reactor coolant from reaching the containment atmosphere. SL violations in TS Section 2.2 are values of various parameters for which automatic protective action is needed during normal operations or anticipated transients to prevent exceeding an SL.

Once the certifications required by 10 CFR 50.82(a)(1) are docketed for PNP, the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel pursuant to 10 CFR 50.82(a)(2). The staff reviewed the proposed deletion and finds that the SLs are not applicable to a reactor in a permanently defueled condition because the specifications in TS Section 2.0 do not apply to the safe storage and handling of spent fuel in the SFP. Therefore, the NRC staff finds that the proposed deletions of TS Sections 2.0, 2.1, and 2.2, in their entirety, are acceptable.

#### 4.3.5 TS Section 3.0, "Limiting Condition for Operation (LCO) Applicability"

TS Section 3.0, "Limiting Condition for Operation (LCO) Applicability," in the PNP TSs contains LCOs, which specify the lowest functional capability or performance levels of equipment required for safe operation of the facility and contain the general requirements applicable to all LCOs and apply at all times unless otherwise stated in the TSs.

The licensee proposed revisions to LCOs 3.0.1 and 3.0.2 and deletion of LCOs 3.0.3 through 3.0.9.

The current LCO 3.0.1 states the following:

LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, LCO 3.0.8, and LCO 3.0.9.

The licensee proposed to revise LCO 3.0.1 to state the following:

LCOs shall be met during the specified conditions in the Applicability, except as provided in LCO 3.0.2.

The current LCO 3.0.2 states the following:

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

The licensee proposed to revise LCO 3.0.2 to state the following:

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated

The NRC staff reviewed the proposed changes to LCO 3.0.1 and concludes that the changes are consistent with the transition to a permanently shutdown and defueled facility. Since 10 CFR 50.82(a)(2) prohibits the licensee from operating the plant or placing fuel in the reactor vessel, the references to modes are no longer applicable. In addition, the references to LCOs 3.0.7, 3.0.8, and 3.0.9 pertain to special tests and operations required for an operating reactor and actions required for equipment, respectively, that will no longer be operating once PNP permanently shuts down and defuels. Therefore, the NRC staff finds the changes acceptable.

The NRC staff reviewed the proposed changes to LCO 3.0.2 and concludes that the changes are consistent with the transition to a permanently shutdown and defueled facility. The references to LCOs 3.0.5 and 3.0.6 pertain to restoring equipment to service under administrative controls and allowing performance of SRs on equipment declared inoperable, respectively, on equipment that will no longer be operating once PNP permanently shuts down and defuels. Therefore, the NRC staff finds the changes acceptable.

The NRC staff reviewed the proposed deletions of LCOs 3.0.3, 3.0.4, 3.0.5, 3.0.6, 3.0.7, 3.0.8, and 3.0.9. These LCOs pertain to an operating reactor. Once PNP permanently shuts down and defuels, these LCOs will no longer be applicable. Therefore, the NRC staff finds the deletions acceptable.

#### 4.3.5.1 TS Section 3.0, "Surveillance Requirement (SR) Applicability"

TS Section 3.0, "Surveillance Requirement (SR) Applicability," in the PNP TSs contains the general requirements applicable to all SRs and applies at all times unless otherwise stated in a TS.

The licensee proposed revisions to SRs 3.0.1, 3.0.2, and 3.0.4. The current SR 3.0.1 states the following:

SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the

SR...Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

The licensee proposed to revise SR 3.0.1 to state the following:

SRs shall be met during the specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR...Surveillances do not have to be performed on variables outside specified limits.

The current SR 3.0.2 states the following:

The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as "once," the above interval extension does not apply

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

The licensee proposed to revise SR 3.0.2 to state the following:

The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance.

The current SR 3.0.4 states the following:

Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.

This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

The licensee proposed to revise SR 3.0.4 to state the following:

Entry into a specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3.

The NRC staff reviewed the proposed changes to SRs 3.0.1, 3.0.2, and 3.0.4 and concludes that the changes are consistent with the transition to a permanently shutdown and defueled facility. Since 10 CFR 50.82(a)(2) prohibits the licensee from operating the plant or placing fuel

in the reactor vessel, the references to modes and the discussions about shutting down the unit are no longer applicable. Further, the NRC staff agrees that the statements to be deleted are no longer necessary because the defueled TSs do not contain frequencies of the type described in the statements being deleted. Therefore, the staff finds that the proposed changes to delete these references reflect the plant status and are acceptable.

#### 4.3.5.2 TS Section 3.1, "Reactivity Control Systems"

TS Section 3.1, "Reactivity Control Systems," in the PNP TSs contains requirements to assure and verify operability of reactivity control systems. The licensee proposed to delete TS Section 3.1 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.1 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.3 TS Section 3.2, "Power Distribution Limits"

TS Section 3.2, "Power Distribution Limits," in the PNP TSs contains power distribution limits that provide assurance that fuel design criteria are not exceeded. The licensee proposed to delete TS Section 3.2 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.2 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.4 TS Section 3.3, "Instrumentation"

TS Section 3.3, "Instrumentation," in the PNP TSs contains operability requirements for sensing and control instrumentation required for safe operation of the facility. The licensee proposed to delete TS Section 3.3 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.3 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.5 TS Section 3.4, "Primary Coolant System (PCS)"

TS Section 3.4, "Primary Coolant System (PCS)," in the PNP TSs contains requirements that provide for appropriate control of process variables, design features, or operating restrictions needed for appropriate functional capability of PCS equipment required for safe operation of the facility. The licensee proposed to delete TS Section 3.4 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.4 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.6 TS Section 3.5, "Emergency Core Cooling Systems (ECCS)"

TS Section 3.5, "Emergency Core Cooling Systems (ECCS)," in the PNP TSs contains requirements that provide for appropriate functional capability of ECCS equipment required for mitigation of DBAs or transients so as to protect the integrity of a fission product barrier. The licensee proposed to delete TS Section 3.5 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.5 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.7 TS Section 3.6, "Containment Systems"

TS Section 3.6, "Containment Systems," in the PNP TSs contain requirements that assure the integrity of the containment, depressurization and cooling systems, and containment isolation valves. The licensee proposed to delete TS Section 3.6 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.6 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.8 TS Section 3.7, "Plant Systems"

TS Section 3.7, "Plant Systems," in the PNP TSs provides requirements for the appropriate functional capability of plant equipment required for safe operation of the facility, including when the facility is in a defueled condition. TS 3.7, "Plant Systems," is proposed to be administratively renamed from "Plant Systems" to "Facility Systems." The licensee states that this change is to reflect the remaining TSs in the section that deal with non-operational facility requirements. This is an editorial change that does not make any technical changes. Therefore, the NRC staff finds this change acceptable.

The licensee proposed to delete the following sections:

- TS 3.7.1, "Main Steam Safety Valves (MSSVs)," including Table 3.7.1-1
- TS 3.7.2, "Main Steam Isolation Valves (MSIVs)"
- TS 3.7.3, "Main Feedwater Regulating Valves (MFRVs) and MFRV Bypass Valves"
- TS 3.7.4, "Atmospheric Dump Valves (ADVs)"

- TS 3.7.5, "Auxiliary Feedwater (AFW) System"
- TS 3.7.6, "Condensate Storage and Supply"
- TS 3.7.7, "Component Cooling Water (CCW) System"
- TS 3.7.8, "Service Water System (SWS)"
- TS 3.7.9, "Ultimate Heat Sink (UHS)"
- TS 3.7.10, "Control Room Ventilation (CRV) Filtration"
- TS 3.7.11, "Control Room Ventilation (CRV) Cooling"
- TS 3.7.12, "Fuel Handling Area Ventilation System"
- TS 3.7.13, "Engineered Safeguards Room Ventilation (ESRV) Dampers"
- TS 3.7.17, "Secondary Specific Activity"

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. The above TS 3.7 sections will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed changes are consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

The licensee proposed to retain but modify the following sections:

- TS 3.7.14, "Spent Fuel Pool (SFP) Water Level".
- TS 3.7.15, "Spent Fuel Pool (SFP) Boron Concentration"
- TS 3.7.16, "Spent Fuel Pool Storage"

By letter dated December 30, 2019 (ADAMS Accession No. ML19317D855), the NRC issued Amendment No. 271 for PNP. This amendment revised the PNP TSs by relocating specific SR frequencies to a licensee-controlled program. The licensee states that PNP will not maintain the Surveillance Frequency Control Program (SFCP), as implemented by Amendment No. 271. As such, the FREQUENCY of SR 3.7.14.1 and SR 3.7.15.1 are reverted to the frequency relocated to the SFCP. Both frequencies are changed from "In accordance with the Surveillance Frequency Control Program" to "7 days." The actual value of the frequencies does not change. The relocation of the frequencies is administrative in nature because the changes are intended to ensure that the SR frequencies are maintained in the TSs and do not involve technical changes. Therefore, the NRC staff finds these changes acceptable.

In TS 3.7.14, TS 3.7.15, and TS 3.7.16, "Spent Fuel Pool Storage," the NOTE in ACTIONS currently states "LCO 3.0.3 is not applicable". The licensee proposed to delete the NOTES to conform to the deletion of TS LCO 3.0.3 as discussed in Section 4.3.5 of this SE. These deletions are administrative in nature because the changes are intended to achieve internal consistency in the TSs and do not involve technical changes. Therefore, the NRC staff finds these changes acceptable.

#### 4.3.5.9 TS Section 3.8, "Electrical Power Systems"

TS Section 3.8, "Electrical Power Systems," in the PNP TSs contains operability requirements that provide for appropriate functional capability of plant electrical equipment required for safe operation of the facility. The licensee proposed to delete TS Section 3.8 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP



10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.8 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.5.10 TS Section 3.9, "Refueling Operations"

TS Section 3.9, "Refueling Operations," in the PNP TSs contains requirements that provide for appropriate functional capability of parameters and equipment that are required for mitigation of DBAs during refueling operations (moving irradiated fuel to or from the reactor core). The licensee proposed to delete TS Section 3.9 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 3.9 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.6 TS Section 4.0, "Design Features"

TS Section 4.0, "Design Features," provides information and design requirements associated with plant systems.

##### 4.3.6.1 TS Section 4.2, "Reactor Core"

TS Section 4.2, "Reactor Core," in the PNP TSs contains requirements for reactor fuel assemblies and control rods in the reactor core. The licensee proposed to delete TS Section 4.2 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 4.2 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

##### 4.3.6.2 TS Section 4.3.1, "Criticality"

A description and evaluation of each of the TS sections proposed for revision is provided as follows:

- TS Section 4.3.1, "Criticality," is proposed to eliminate reference to new fuel storage from TS 3.3.1.1.a, TS 3.3.1.1.e, and TS 3.3.1.3.e. As such the wording will be changed from "New or irradiated" to "Irradiated".

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. Consequently, PNP will no longer be licensed to acquire new fuel assemblies. As

a result, references to new fuel storage will not be applicable in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff

- TS 4.3.1.4 provides requirements for the fuel racks for new fuel assemblies. The licensee proposed to delete TS 4.3.1.4, including Figure 4.3-1, "New Fuel Storage Rack Arrangement."

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. Consequently, PNP will no longer be licensed to acquire new fuel assemblies. As a result, references to new fuel storage will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff

#### 4.3.7 TS Section 5.0, "Administrative Controls"

TS Section 5.0, "Administrative Controls," establishes the requirements associated with site personnel responsibilities, the site organization, staffing, training, procedures, programs, reporting requirements, and high radiation areas.

##### 4.3.7.1 TS Section 5.5.2, "Primary Coolant Sources Outside Containment"

TS Section 5.5.2, "Primary Coolant Sources Outside Containment," provides controls to minimize primary coolant leakage to the engineered safeguards rooms from portions of systems outside containment during mitigation of a DBA occurring in containment. The licensee proposed to delete TS Section 5.5.2 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.5.2 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

##### 4.3.7.2 TS Section 5.5.3, "Post Accident Sampling Program"

The licensee proposed to delete the title for TS 5.5.3.

This is an administrative change as the TS was deleted in Amendment No. 193 (ADAMS Accession No. ML010670348). Therefore, the NRC staff finds this administrative change acceptable.

##### 4.3.7.3 TS Section 5.5.5, "Containment Structural Integrity Surveillance Program"

TS Section 5.5.5, "Containment Structural Integrity Surveillance Program," provides controls for monitoring of several containment attributes to ensure containment structural integrity. The licensee proposed to delete TS Section 5.5.5 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.5.4 will not be applicable in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.7.4 TS Section 5.5.6, "Primary Coolant Pump Flywheel Surveillance Program"

TS Section 5.5.6, "Primary Coolant Pump Flywheel Surveillance Program," provides the inspection frequencies and acceptance criteria for the reactor coolant pump flywheel inspection program. The licensee proposed to delete TS Section 5.5.6 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.5.6 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.7.5 TS Section 5.5.7, "Inservice Testing Program"

The licensee proposed to delete the title for TS 5.5.7.

This is an administrative change as the TS was previously deleted in a previous license amendment (Amendment No. 262 (ADAMS Accession No. ML17082A465)) and the title is therefore no longer necessary. Therefore, the staff finds this administrative change acceptable.

#### 4.3.7.6 TS Section 5.5.8, "Steam Generator (SG) Program"

TS Section 5.5.8, "Steam Generator (SG) Program," requires that a steam generator program be established and implemented to ensure that steam generator tube integrity is maintained. The licensee proposed to delete TS Section 5.5.8 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.5.8 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.7.7 TS Section 5.5.9, "Secondary Water Chemistry Program"

TS Section 5.5.9, "Secondary Water Chemistry Program," provides controls for monitoring secondary water chemistry to inhibit steam generator tube degradation. The licensee proposed to delete TS Section 5.5.9 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.5.9 will not be applicable to a reactor in a

permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.7.8 TS Section 5.5.10, "Ventilation Filter Testing Program"

TS Section 5.5.10, "Ventilation Filter Testing Program" (VFTP), requires that a program be established to implement certain testing procedures for the control room ventilation system. The licensee proposed to delete TS Section 5.5.10 in its entirety.

As discussed in Section 4.3.5.8 of this SE, TS 3.7.10, "Control Room Ventilation (CRV) Filtration," and TS 3.7.12, "Fuel Handling Area Ventilation System," are proposed for deletion. VFTP as a support program is not required in a permanently defueled condition. Therefore, the staff finds the deletion of TS 5.5.10 acceptable.

#### 4.3.7.9 TS Section 5.5.11, "Fuel Oil Testing Program"

TS Section 5.5.11, "Fuel Oil Testing Program," requires that a diesel fuel oil testing program to implement testing of both new fuel oil and stored fuel oil be established to ensure compliance with manufacturer's specifications and applicable ASTM Standards. The licensee proposed to delete TS Section 5.5.11 in its entirety.

As discussed in Section 4.3.5.9 of this SE, TS 3.8, "Electrical Power Systems" is proposed for deletion. As such, TS 3.8.1, "AC [alternating current] Sources – Operating," TS 3.8.2, "AC Sources – Shutdown," and TS 3.8.3, "Diesel Fuel, Lube Oil, and Starting Air," are also proposed for deletion because they define the operability requirements regarding the diesel generators. Therefore, this support program is not required in a permanently shutdown and defueled condition. Therefore, the NRC staff finds the deletion of TS 5.5.11 acceptable.

#### 4.3.7.10 TS Section 5.5.13, "Safety Function Determination Program (SFDP)"

TS Section 5.5.13, "Safety Function Determination Program (SFDP)," requires a program be established to ensure loss of safety function is detected and appropriate actions are taken. The licensee proposed to delete TS Section 5.5.13 in its entirety.

The LCOs remaining in the PDTs do not rely on the operability of any active equipment or systems to satisfy the LCO. Because 10 CFR 50.82(a)(2) prohibits operation of the plant or placing fuel in the reactor vessel, there is no longer a need for redundant systems. Therefore, the requirements of the SFDP, which direct cross-train checks of multiple and redundant safety systems, no longer apply in a permanently shutdown and defueled condition. Therefore, the NRC staff finds the deletion of TS 5.5.13 acceptable.

#### 4.3.7.11 TS Section 5.5.14, "Containment Leakage Rate Testing Program"

TS Section 5.5.14, "Containment Leakage Rate Testing Program," requires that a program to establish the leakage rate testing of the containment. The licensee proposed to delete TS Section 5.5.14 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or

retention of fuel in the reactor vessel. Containment integrity is not credited in the analysis of the accidents that remains credible in the permanently defueled condition.

As discussed in Section 4.3.5.7 of this SE, TS 3.6, "Containment Systems" is proposed for deletion. As such, TS 3.6.1 through TS 3.6.6 regarding containment systems are also proposed for deletion. This support program is not required in a permanently shutdown and defueled condition. Therefore, the NRC staff finds the deletion of TS 5.5.14 acceptable.

#### 4.3.7.12 TS Section 5.5.16, "Control Room Envelope Habitability Program"

TS Section 5.5.16, "Control Room Envelope Habitability Program," provides the required elements of the control room envelope habitability program. The licensee proposed to delete TS Section 5.5.16 in its entirety.

TS 5.5.16 establishes the administrative program for testing of the control room habitability systems to ensure operators can safely implement actions to control the reactor and mitigate accidents from within the control room envelope. These tests of control room habitability systems are no longer necessary to support safe operation of the facility because reactor accidents challenging control room habitability are not possible with the reactor permanently defueled and the FHA analysis no longer relies on the control room habitability systems to protect operators. Since operation in MODES 1 through 4 will no longer occur, the reactor will be permanently defueled, the PDTS will not become effective before 17 days of irradiated fuel decay time, and new License Condition 2.C.(5) will prohibit cask movement over irradiated fuel assemblies decayed less than 90 days, the NRC staff finds deletion of TS 5.5.16 acceptable.

#### 4.3.7.13 TS Section 5.5.17, "Surveillance Frequency Control Program [SFCP]"

TS Section 5.5.17, "Surveillance Frequency Control Program," requires that a program be established to ensure that SRs specified in the TSs are performed at intervals sufficient to assure the associated LCOs are met. The licensee proposed to delete TS Section 5.5.17 in its entirety.

The SFCP was implemented by Amendment No. 271. As discussed in Section 4.3.5.8 of this SE, the licensee states that PNP will not maintain the SFCP, and the FREQUENCY of SRs are reverted to the frequency relocated to the SFCP. This support program is not required in a permanently shutdown and defueled condition. Therefore, the NRC staff finds the deletion of TS 5.5.17 acceptable.

#### 4.3.8 TS Section 5.6, "Reporting Requirements"

##### 4.3.8.1 TS Section 5.6.2, "Radiological Environmental Operating Report"

Currently, TS Section 5.6.2 reads:

The Radiological Environmental Operating Report covering the operation of the plant during the previous calendar year shall be submitted before May 15 of each year...

The licensee proposed TS Section 5.6.2 to read:

The Radiological Environmental Operating Report covering the operation of the facility during the previous calendar year shall be submitted before May 15 of each year...

The proposed change to the description "the plant" to "the facility" would provide a more accurate description of the requirements during the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable.

##### 4.3.8.2 TS Section 5.6.3, "Radioactive Effluent Release Report"

Currently, TS Section 5.6.3 reads:

The Radioactive Effluent Release Report covering operation of the plant in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the plant....

The licensee proposed TS Section 5.6.3 to read:

The Radioactive Effluent Release Report covering operation of the plant in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the plant....

The proposed change to the description "the plant" to "the facility" would provide a more accurate description of the requirements during the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable.

#### 4.3.8.3 TS Section 5.6.5, “Core Operating Limits Report (COLR)”

TS Section 5.6.5, “Core Operating Limits Report (COLR),” provides the required documentation and analytical methods used to determine the reactor core operating limits. The licensee proposed to delete TS Section 5.6.5 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.6.5 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.8.4 TS Section 5.6.6, “Post-Accident Monitoring Report”

TS Section 5.6.6, “Post-Accident Monitoring Report,” provides the reporting requirements associated with post-accident monitoring. The licensee proposed to delete TS Section 5.6.6 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.6.6 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.8.5 TS Section 5.6.7, “Containment Structural Integrity Surveillance Report”

TS Section 5.6.7, “Containment Structural Integrity Surveillance Report,” provides the reporting requirements associated with Prestressing, Anchorage, and Dome Delamination tests. The licensee proposed to delete TS Section 5.6.7 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.6.7 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.3.8.6 TS Section 5.6.8, “Steam Generator Tube Inspection Report”

TS Section 5.6.8, “Steam Generator Tube Inspection Report,” provides the reporting requirements associated with steam generator tube inspection program. The licensee proposed to delete TS Section 5.6.8 in its entirety.

Once the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel have been docketed, pursuant to 10 CFR 50.82(a)(2), the PNP 10 CFR Part 50 license will no longer authorize operation of the reactor or emplacement or retention of fuel in the reactor vessel. TS 5.6.8 will not be applicable to a reactor in a permanently defueled condition. Therefore, the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable to the NRC staff.

#### 4.4 Changes to Appendix B, Environmental Technical Specification Requirements

##### 4.4.1 Title Page

The current title page states, in part:

FACILITY OPERATING LICENSE DPR-20

The licensee proposed to change the title page to state, in part:

RENEWED FACILITY OPERATING LICENSE DPR-20

Adding the word “Renewed” to the title page is an administrative change to ensure that the title page is consistent with the title of the PNP license. Therefore, the NRC staff finds this change acceptable.

##### 4.4.2 Table of Contents

The licensee proposed to revise the Table of Contents to correct page numbering and to change the word “Plant” with “Facility.” The changes to the Table of Contents are editorial and do not change any technical content. The NRC staff finds the changes to the Table of Contents acceptable.

##### 4.4.3 Appendix B, Section 1.0, “Objectives of the Environmental Protection Plan”

Currently, Section 1.0 reads:

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during construction and operation of the nuclear facility. The principal objectives of the EPP are as follows:

- (1) Verify that the plant is operated in an environmentally acceptable manner, as established by the FES and other NRC environmental impact assessments.
- (2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.
- (3) Keep NRC informed of the environmental effects of facility construction and operation and of actions taken to control those effects.

Environmental concerns identified in the FES which relate to water quality matters are regulated by way of the licensee's NPDES permit.

The licensee proposed Section 1.0 to read:

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during handling and storage of spent fuel and maintenance of the nuclear facility. The principal objectives of the EPP are as follows:



- (1) Verify that the facility is maintained in an environmentally acceptable manner, as established by the FES and other NRC environmental impact assessments.
- (2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.
- (3) Keep NRC informed of the environmental effects of handling and storage of spent fuel and maintenance of the facility and of actions taken to control those effects.

Environmental concerns identified in the FES which relate to water quality matters are regulated by way of the licensee's NPDES permit.

The proposed changes to Section 1.0 replace the reference to "construction and operation" with a reference to "handling and storage of spent fuel and maintenance," replace a reference to "plant is operated" with "facility is maintained," and replace reference to "facility construction and operation" with "handling and storage of spent fuel and maintenance of the facility." These proposed changes reflect the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed changes are consistent with 10 CFR 50.82(a)(2) and are acceptable.

#### 4.4.4 Appendix B, Section 2.1, "Aquatic Issues"

Currently, Section 2.1 reads:

The need for aquatic monitoring programs to confirm that thermal mixing occurs as predicted, that chlorine releases are controlled within those discharge concentrations evaluated, and that effects on aquatic biota and water quality due to plant operation are no greater than predicted.

The licensee proposed Section 2.1 to read:

The need for aquatic monitoring programs to confirm that thermal mixing occurs as predicted, that chlorine releases are controlled within those discharge concentrations evaluated, and that effects on aquatic biota and water quality due to facility operation are no greater than predicted.

The proposed change to Section 2.1 replaces the reference to "plant" with "facility." This proposed change reflects the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. The NRC staff finds that the proposed changes are acceptable, as they are more closely align with how PNP is referenced in the license conditions and TSs remaining in the PDTs, and reflect the permanently shutdown and defueled condition

#### 4.4.5 Appendix B, Section 3.1, "Plant Design and Operation"

Currently, Section 3.1 reads:

##### 3.1 Plant Design and Operation

The licensee may make changes in station design or operation or perform tests or experiments...Changes in plant design or operation or performance of tests or experiments...

A proposed change, test, or experiment shall...(2) a significant change in effluents or power level;...

The licensee proposed Section 3.1 to read:

##### 3.1 Facility Design and Operation

The licensee may make changes in facility design or operation or perform tests or experiments...Changes in plant design or operation or performance of tests or experiments...

A proposed change, test, or experiment shall...(2) a significant change in effluents;...

The proposed changes to Section 3.1 replace references to "plant" and "station" with "facility," and to delete the wording "or power level." These proposed changes reflect the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. The NRC staff finds that the proposed changes are acceptable, as they are more closely align with how PNP is referenced in the license conditions and TSs remaining in the PDTs, and reflect the permanently shutdown and defueled condition

#### 4.4.6 Appendix B, Section 3.3

Currently, Section 3.3 reads:

Changes in plant design or operation and...

The licensee proposed Section 3.3 to read:

Changes in facility design or operation and...

The proposed change to Section 3.3 replaces the reference to "plant" with "facility." This proposed change reflects the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable.

#### 4.4.7 Appendix B, Section 4.1, "Unusual or Important Environmental Events"

Currently, Section 4.1 reads:

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to plant operation shall be recorded and...

The licensee proposed Section 4.1 to read:

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to the handling and storage of spent fuel and maintenance of the facility shall be recorded and...

The proposed change to Section 4.1 replaces the reference to "plant operation" with "the handling and storage of spent fuel and maintenance of the facility." This proposed change reflects the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable.

#### 4.4.8 Appendix B, Section 5.2, "Records Retention"

Currently, Section 5.2 reads:

Records and logs relative to the environmental aspects of plant operation shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to the NRC on request.

Records of modifications to plant structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the plant. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

The licensee proposed Section 5.2 to read:

Records and logs relative to the environmental aspects of previous plant operation and the handling and storage of spent fuel and maintenance of the facility shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to the NRC on request.

Records of modifications to facility structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the facility. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

The proposed changes to Section 5.2 clarify that the reference to “plant operation” refers to plant operations previous to the permanent shutdown and includes a reference to “the handling and storage of spent fuel and maintenance of the facility.” In addition, references to “plant” are replaced with “facility.” These proposed changes reflect the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, these changes would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed changes are consistent with 10 CFR 50.82(a)(2) and are acceptable.

#### 4.4.9 Appendix B, Title of Section 5.4

The current Section 5.4 title reads:

Plant Reporting Requirements

The licensee proposed to change the Section 5.4 title to read:

Facility Reporting Requirements

The proposed change to Section 5.4 title replaces the reference to “Plant” with “Facility.” This proposed change reflects the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, this change would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable.

#### 4.4.10 Appendix B, Section 5.4.1, “Routine Reports”

Currently, Section 5.4.1 reads:

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this Environmental Protection Plan for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous nonradiological environmental monitoring reports, and on assessment of the observed impacts of the plant operation on the environment...

...

- (b) A list of all changes in station design or operation, tests, and experiments made in accordance with Subsection 3.1 which involved a potentially significant unreviewed environmental issue.

The licensee proposed Section 5.4.1 to read:

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this Environmental Protection Plan for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous

nonradiological environmental monitoring reports, and on assessment of the observed impacts of the facility operation on the environment...

- ...
- (b) A list of all changes in facility design or operation, tests, and experiments made in accordance with Subsection 3.1 which involved a potentially significant unreviewed environmental issue.

The proposed changes to Section 5.4.1 replaces references to “plant” with “facility.” These proposed changes reflect the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, these changes would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed changes are consistent with 10 CFR 50.82(a)(2) and are acceptable.

#### 4.4.11 Appendix B, Section 5.4.2, “Nonroutine Reports”

Currently, Section 5.4.2 reads:

...The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and plant operating characteristics, (b)...

The licensee proposed Section 5.4.2 to read:

...The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and facility operating characteristics, (b)...

The proposed change to Section 5.4.2 replaces the reference to “plant” with “facility.” This proposed change reflects the revised mission of the facility in the permanently shutdown and defueled condition. Since, consistent with 10 CFR 50.82(a)(2), the PNP license will no longer authorize use of the facility for power operation or emplacement or retention of fuel into the reactor vessel, these changes would provide accuracy in the 10 CFR Part 50 license description. Therefore, the NRC staff finds that the proposed change is consistent with 10 CFR 50.82(a)(2) and is acceptable.

## 5.0 STATE CONSULTATION

In accordance with the Commission’s regulations, the Michigan State official was notified of the proposed issuance of the amendment on February 7, 2022. The Michigan State official had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendment relates, in part, to changes in recordkeeping, reporting, or administrative procedures or requirements. The amendment also relates, in part, to changing requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendment involves 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

issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (86 FR 50194; September 7, 2021). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 7.0 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 amendment 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: May 13, 2022

SUBJECT: PALISADES NUCLEAR PLANT – ISSUANCE OF AMENDMENT NO. 272 RE:  
 PERMANENTLY DEFUELED TECHNICAL SPECIFICATIONS  
 (EPID L-2021-LLA-0099) DATED MAY 13, 2022

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DATE	02/16/2022	02/11/2022	02/16/2022	01/05/22
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