

SAFETY EVALUATION BY  
THE OFFICE OF NUCLEAR SECURITY AND INCIDENT RESPONSE  
RELATED TO AMENDMENT NO. 257 TO  
RENEWED FACILITY OPERATING LICENSE NO. DPR-35  
PILGIM NUCLEAR POWER STATION  
DOCKET NOS. 50-293 AND 72-1044

1.0 INTRODUCTION

Pilgrim Nuclear Power Station (PNPS) is located on the western shore of Cape Cod Bay in the Town of Plymouth, Plymouth County, Massachusetts. It is 38 miles southwest of Boston, Massachusetts, and 44 miles east of Providence, Rhode Island. PNPS was a facility with a General Electric boiling water reactor nuclear steam supply system that was licensed to generate 2,028 megawatts – thermal (MWt). Power operations ceased at PNPS on May 31, 2019, and the fuel was permanently removed from the reactor vessel and placed in the spent fuel pool on June 9, 2019. PNPS is also the site of the generally licensed PNPS Independent Fuel Storage Installation (ISFSI) which is located on the northern portion of the 134-acre property located within the Site Boundary. The PNPS and ISFSI are currently owned by Holtec International, and the licensed decommissioning operator is Holtec Decommissioning International, LLC (HDI) who is the holder of the Renewed Facility Operating License No. DPR-35, issued pursuant to the Atomic Energy Act of 1954, as amended, and Part 50, “Domestic Licensing of Production and Utilization Facilities,” of Title 10 of the *Code of Federal Regulations* (10 CFR).

Previously the PNPS was owned and operated by Entergy Nuclear Operations, Inc. (ENOI). By letter dated June 10, 2019 (Reference 1), ENOI certified to the U.S. Nuclear Regulatory Commission (NRC) that PNPS had permanent cessation of power operations and that fuel had been permanently removed from the reactor vessel pursuant to 10 CFR 50.82(a)(1)(i) and 10 CFR 50.82(a)(1)(ii). Upon docketing of the certification, and pursuant to 10 CFR 50.82(a)(2), the PNPS facility operating license no longer authorized operation of the reactor or emplacement or retention of fuel into the reactor vessel.

Subsequently, by an NRC Order Approving Transfer of PNPS and Conforming License Amendment, dated August 22, 2019 (Reference 2), the ownership and operating license for the PNPS was transferred to HDI.

By application dated February 18, 2021 (Reference 3), as supplemented by letters dated May 20, 2021, July 29, 2021, September 7, 2021, and September 17, 2021 (References 4, 5, 6, and 7 respectively) HDI requested prior approval by the NRC of the proposed PNPS ISFSI Only Emergency Plan (IOEP) and associated emergency action level (EAL) Scheme Technical Bases Document, to support the planned transfer of the spent fuel from the PNPS spent fuel pool (SFP) to the ISFSI.

The proposed changes would reflect the decommissioning status of the facility, as well as the reduced scope of potential radiological accidents, once all spent fuel has been moved to dry cask storage within the onsite ISFSI.

The supplements to the application, dated May 20, 2021, July 29, 2021, September 7, 2021, and September 17, 2021, provided additional information that clarified the application, but did not expand the scope of the application as originally noticed and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* (FR) on April 20, 2021, (86 FR 20526).

## 2.0 REGULATORY EVALUATION

This safety evaluation addresses the acceptability of the proposed PNPS IOEP and associated EAL scheme. This plan would replace the existing Permanently Defueled Emergency Plan (PDEP) and associated Permanently Defueled EALs after all spent fuel has been transferred from the SFP to dry cask storage within the onsite ISFSI.

The proposed PNPS IOEP and associated EAL scheme are required to meet the following regulatory requirements, subject to the exemptions granted by letter dated December 18, 2019 (Reference 8):

- 10 CFR 50.47(b)(1), as applicable, states, in part: "... each principal response organization has staff to respond and to augment its initial response on a continuous basis."
- 10 CFR 50.47(b)(2) states, in part: "... adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available ..."
- 10 CFR 50.47(b)(4), as applicable, states, in part: "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee..."
- 10 CFR Part 50, Appendix E, Section IV.A, as applicable, states, in part: "The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization..."

The associated guidance documents on which the NRC based its evaluation and acceptance of the proposed IOEP, and associated EAL scheme are as follows:

- Revision 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Reference 9), which provides a common reference and guidance source for nuclear facility operators to develop radiological emergency response plans.
- Office of Nuclear Security and Incident Response / Division of Preparedness and Response (NSIR/DPR) Interim Staff Guidance (ISG) – 2, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" (Reference

10), which provides guidance for the review of permanently defueled emergency plans for power reactor sites undergoing decommissioning.

- NUREG-2215, “Standard Review Plan for Spent Fuel Dry Storage Systems and Facilities” (Reference 11), which provides emergency plan review guidance applicable to facilities licensed pursuant to the regulatory requirements found in 10 CFR Part 72, “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste.”
- Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6, “Development of Emergency Action Levels for Non-Passive Reactors” (Reference 12), which was endorsed by the NRC in a letter dated March 28, 2013 (Reference 13), as generic (non-plant-specific) EAL scheme development guidance.

### 3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee’s regulatory and technical analyses in support of its proposed emergency plan changes, as described in the application dated February 18, 2021, as supplemented by letters dated May 20, 2021, July 29, 2021, September 7, 2021, and September 17, 2021. The technical evaluation is detailed below.

#### 3.1 Background

By letter dated January 2, 2020 (Reference 14), the NRC issued Amendment No. 251, to Renewed Facility Operating License No. DPR-35 approving the PNPS PDEP and Permanently Defueled EAL scheme. By letter dated March 31, 2020 (Reference 15), HDI notified the NRC that the PDEP and Permanently Defueled EAL scheme would be implemented on April 1, 2020.

#### 3.2 Proposed Changes

In its application dated February 18, 2021, as supplemented by letters dated May 20, 2021, July 29, 2021, September 7, 2021, and September 17, 2021, PNPS requested that the NRC review and approve a proposed IOEP, which included an ISFSI Only EAL scheme based on the applicable guidance in NEI 99-01, Revision 6. The proposed amendment would replace the existing PDEP and associated Permanently Defueled EAL scheme.

The proposed changes would modify the scope of onsite emergency preparedness requirements to reflect the reduced potential of radiological accidents with all spent fuel in dry cask storage within the onsite ISFSI. The off-normal events and accidents addressed in the IOEP are related to the dry cask storage of spent nuclear fuel at the ISFSI and include only off-normal, accident, natural phenomena, and hypothetical events and consequences affecting the PNPS ISFSI.

The major changes that PNPS is requesting are: (1) elimination of SFP-related initiation conditions (ICs) and EAL thresholds from the EAL scheme; (2) revision of the PNPS Emergency Response Organization (ERO); and (3) identification of the ISFSI Shift Supervisor as the position assuming the Emergency Director responsibilities upon declaration of an emergency classification.

Under the PDEP, with spent fuel stored within the SFP, the most severe postulated beyond-design-basis accident involved a highly unlikely sequence of events that causes a heat up of the spent fuel, postulated to occur without heat transfer, such that the zirconium alloy fuel cladding reaches ignition temperature. While highly improbable, the resultant zirconium alloy fire could potentially lead to the release of fission products to the atmosphere. However, after removal of the spent fuel from the SFP, the accident scenarios and analyses demonstrate that the age and configuration of spent fuel stored in dry cask storage precludes the possibility of such a zirconium alloy fire scenario. As such, after all the spent fuel is transferred to dry cask storage within the onsite ISFSI, the number and severity of potential radiological accidents is significantly less than when spent fuel was stored in the SFP. For these reasons, the potential radiological consequences of accidents possible at PNPS after all spent fuel is transferred to the ISFSI are further reduced.

There continues to be no need for formal offsite radiological emergency preparedness plans under 44 CFR Part 350, "Review and Approval of State and Local Radiological Emergency Plans and Preparedness," at PNPS because no design-basis accident or reasonably credible beyond-design-basis accident can result in radioactive releases that exceed the U.S. Environmental Protection Agency (EPA) early phase protective action guides (PAGs) (Reference 16) beyond the exclusion area boundary.

### 3.3 Evaluation

The NRC staff reviewed the changes from the current PNPS PDEP to the proposed IOEP and EAL scheme, including the licensee's evaluation of the changes, to verify that the proposed IOEP and EAL scheme continue to meet the standards contained in 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, as applicable, for the long-term defueled conditions at PNPS. The NRC staff also performed a review to ensure that the proposed IOEP would be consistent with the requirements of 10 CFR 72.32(a) for an ISFSI not located on the site of an operating nuclear power reactor. Although the requirements of 10 CFR 72.32(a) do not apply to a 10 CFR Part 50 licensee, such as PNPS, the NRC examined these regulations to promote consistency in the emergency planning requirements between specifically licensed (Part 72) and generally licensed (Part 50) ISFSIs. These requirements, and their applicability to facilities licensed under 10 CFR Part 72, are further described in NUREG-2215.

#### 3.3.1 *Elimination of SFP-Related Initiation Conditions and EALS*

After all fuel is removed from the SFP, there will no longer be any potential for the accidents previously described in the PDEP associated to SFP operation that would increase risk to the health and safety of the public. These accidents included events specifically related to the storage of the spent fuel in the SFP. HDI provided that the off-normal events and accidents addressed in the IOEP are related to the dry cask storage of spent nuclear fuel within the onsite ISFSI and include only the off-normal, accident, natural phenomena, and hypothetical events and consequences presented in the HI-STORM Final Safety Analysis Report (Reference 17). After the transfer of the spent fuel from the SFP to dry cask storage within the onsite ISFSI, the spent fuel storage and handling systems associated with the SFP will be removed from operation. Therefore, accident conditions associated with the SFP are no longer applicable.

The ICs and EALs associated with the emergency classification levels in the current PDEP are based on Appendix C, "Permanently Defueled Station ICs/EALs," to NEI 99-01, Revision 6, which addresses a nuclear power reactor that has permanently ceased operations and transferred spent fuel from the reactor vessel to the SFP (permanently defueled). After all spent

fuel has been removed from the SFP and placed in dry cask storage within the ISFSI, the ICs and EALs in Appendix C to NEI 99-01, Revision 6, which are associated with the SFP at a decommissioning facility, are no longer required. Additionally, when administrative controls are established to limit source term accumulation and the offsite consequences of uncontrolled effluent release, certain ICs and EALs, whose primary function is not associated with the SFP, are no longer required. HDI states that these administrative controls will ensure that if a radiological release were to occur, doses at the Site Boundary would not exceed two times the Offsite Dose Calculation Manual (ODCM) limits (2 times 1500 millirem/year) for 60 minutes, and therefore not result in doses to the public above EPA early phase PAGs beyond the controlled area boundary. The ISFSI controlled area is completely enclosed within the Site Boundary. Thus, any radiological releases beyond the Site Boundary will also be less than the EPA early phase PAGs.

Examples of administrative controls for radiological source term accumulation limits of the radiological source are:

- limits on radioactive materials collected on filter media and resins (dose rate limit);
- limits on contaminated materials collected in shipping containers (dose rate limit);
- limits on surface or fixed contamination on work areas that may create airborne radioactive material (activity limits); and
- limits on contaminated materials collected in radioactive liquid storage tanks (activity concentration limits).

Examples of potential methods to control accidental dispersal of the radiological source term include limits on dispersal mechanisms that may cause a fire (e.g., limits on combustible material loading, use of a fire watch to preclude fires, etc.), placement of a berm around a radioactive liquid storage tank, and packaging radioactive materials within confined boundaries with ventilation controls established.

Other ICs proposed for deletion include those associated with the SFP mitigative strategies contained in certain PNPS license conditions, as well as response procedures for potential or actual aircraft attacks. The NRC staff has previously maintained EALs for potential or actual aircraft threats for facilities transitioning into decommissioning with spent fuel stored in an SFP, as well as maintaining the mitigative strategies license conditions. These will be eliminated after spent fuel is removed from the SFP and is in dry cask storage within the onsite ISFSI.

The proposed deletions in the ICs from the EAL scheme for PNPS are shown in strikeout in the Table below. The deletions are appropriate because they are either associated only with SFP operation or, for those whose primary function is not associated with the SFP, sufficient administrative controls to limit possible effluent releases have been established. The ICs and EALs being deleted in their entirety include all ICs associated with the categories of abnormal radioactivity release and system malfunction, as these two categories apply only to SFP operation.

**Table 1: Emergency Plan Initiating Conditions Being Deleted**

<b>ALERT</b>	<b>UNUSUAL EVENT</b>
<del><b>PD-AA1</b> Release of gaseous or liquid radioactivity resulting in offsite dose greater</del>	<del><b>PD-AU1</b> Release of gaseous or liquid radioactivity greater than 2 times the ODCM</del>

than 10 mRem TEDE or 50 mRem thyroid CDE.	limits for 60 minutes or longer.
<del>PD-AA2 UNPLANNED rise in facility radiation levels that impedes facility access required to maintain spent fuel integrity.</del>	<del>PD-AU2 UNPLANNED rise in facility radiation levels.</del>
	<del>PD-HU2 Hazardous Event affecting equipment necessary for spent fuel cooling.</del>
	<del>PD-SU1 UNPLANNED spent fuel pool temperature rise.</del>
<b>ALERT</b>	<b>UNUSUAL EVENT</b>
<p><del>PD-HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes is occurring or has occurred.</del></p> <p>1. <del>Notification by the Security Force that</del> <u>A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor.</u> OR</p> <p>2. <del>A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.</del></p>	<p><del>PD-HU1 Confirmed SECURITY CONDITION or threat (1 or 2 or 3) at the Independent Spent Fuel Storage Installation (ISFSI)</del></p> <p>1. <del>Notification by the Security Force of a</del> <u>Notification of a credible security threat directed at the site, as determined per SY AA 101-132, Security Assessment and Response to Unusual activities.</u></p> <p>OR</p> <p>2. <u>A SECURITY CONDITION that does <b>not</b> involve a HOSTILE ACTION as reported by the Security Shift Supervisor.</u></p> <p>3. <del>A validated notification from the NRC providing information of an aircraft threat.</del></p>

For a facility in which all spent fuel is stored in the ISFSI, the conditions addressed in PD-HU2 remain fully addressed by IC E-HU1.

The ICs listed in Table below are to be retained.

**Table 2: ISFSI Only Emergency Plan Initiating Conditions**

<b>ALERT</b>	<b>UNUSUAL EVENT</b>
<b>Independent Spent Fuel Storage Installation</b>	
	<b>E-HU1:</b> Damage to a loaded cask CONFINEMENT BOUNDARY.
<b>Hazards and Other Conditions</b>	
<b>PD-HA1</b> HOSTILE ACTION is occurring or has occurred.	<b>PD-HU1</b> Confirmed SECURITY CONDITION or threat at the Independent Spent Fuel Storage Installation (ISFSI).

<b>PD-HA3</b> Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.	<b>PD-HU3</b> Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.
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The most severe beyond-design-basis accident postulated for PNPS with spent fuel stored within the SFP involved a highly unlikely sequence of events that causes heat up of the spent fuel, postulated to occur without heat transfer, such that the zirconium alloy fuel cladding reaches ignition temperature. Because this limiting, beyond-design-basis scenario is no longer possible due to the transfer of spent fuel from the SFP to dry cask storage in the onsite ISFSI, HDI's assessment focused on the following design-basis accidents associated with the performance of decommissioning activities with all irradiated fuel stored in the PNPS ISFSI: (1) cask drop event (fuel-related event); (2) radioactive material handling accident (non-fuel-related event); and (3) accidents initiated by external events.

As discussed in the December 18, 2019, exemption from certain emergency planning requirements for PNPS, an analysis of the potential radiological impact of a design-basis accident at PNPS in a permanently defueled condition indicated that any releases beyond the exclusion area boundary were below the EPA early phase PAGs. The basis for these exemptions has not changed and remains in effect for the proposed emergency plan changes.

For design-basis accidents (1) and (2) cited in the paragraph above, the results of the licensee's assessment indicate that the projected radiological doses at the exclusion area boundary continue to be less than the EPA early phase PAGs. The effects of accidents initiated by external events, (3) cited above, such as fires, flood, wind (including tornadoes), earthquakes, lightning, and physical security breaches on the PNPS ISFSI that could affect the confinement boundary of the ISFSI, remain unchanged from the effects that were considered under the PDEP. The NRC staff examined the assumptions used in the licensee's analyses and verified that inputs were more conservative than those used in the approved PDEP, and therefore, determined that the associated accident analyses are sufficient to conclude that any releases beyond the exclusion area boundary will be below EPA early phase PAGs.

Because of the very low risk of consequences to public health and safety resulting from the postulated accidents related to the PNPS ISFSI, no potential emergencies continue to be classified higher than the Alert level in accordance with the requirements of Section IV.C.1 to Appendix E of 10 CFR Part 50, as applicable. Classification of emergencies at no higher than an Alert level also maintains consistency with the regulations in 10 CFR 72.32(a)(3), "Classification of accidents."

Based on the NRC staff's review of the proposed IOEP and associated EAL scheme, as described above, the NRC staff concludes that planning standard 10 CFR 50.47(b)(4), as applicable, pertaining to a standard emergency classification and action level scheme, is addressed in an acceptable manner in the IOEP, considering the permanently shut down and defueled status of the facility and the proposed transfer of all remaining spent fuel from the SFP to dry cask storage within the ISFSI.

### 3.3.2 *Emergency Response Organization Revision*

The existing PDEP provides for two ERO augmented positions: a Technical Coordinator and a Radiation Protection Coordinator. The proposed IOEP would replace these positions with a Resource Manager and an individual trained in radiological monitoring and assessment. The

Resource Manager will assist in assessing the event and obtaining needed resources, including public information interface. The Resource Manager will be in contact with the Emergency Director within two hours of declaration of an Unusual Event or an Alert classification level. The Resource Manager does not need to physically report to PNPS to perform their responsibilities. The Resource Manager augments the Emergency Director by assisting in assessing the emergency condition and coordinating the required resources, including serving as the public information interface. Services provided to the Emergency Director by the Resource Manager can be provided remotely and do not necessitate an onsite response by the Resource Manager. By responding remotely, the actual response time is decreased (as compared to the ERO response required by the PDEP as described above) with no negative impact to services and functional responsibilities provided by the Resource Manager. The Resource Manager's functional responsibilities could be performed in a timely manner either by reporting to the site or performing the function remotely in the specified timeframe.

In addition, HDI proposes that, for a declared emergency involving radiological consequences, a minimum of one person trained in radiological monitoring and assessment will report to the PNPS ISFSI within 4 hours of the emergency declaration.

In its evaluation of the proposed changes to the ERO, the NRC staff considered the accident analysis referenced above, related to the deletion of EALs, either partially or in their entirety, as indicated, as they relate to SFP operation. Specifically, the NRC staff considered the postulated accidents that could occur with all the spent fuel moved into dry cask storage within the onsite ISFSI, which pose a very low risk to public health and safety. The NRC staff notes that HDI also continues to commit to maintain the appropriate level of augmented response to an emergency, to include an event involving radiological consequences.

In the Statement of Considerations for the Final Rule for Emergency Planning Licensing Requirements for Independent Spent Fuel Storage Facilities and Monitored Retrievable Storage Facilities (MRS) (60 FR 32430; June 22, 1995), the Commission stated, in part:

For there to be a significant environmental impact resulting from an accident involving the dry storage of spent nuclear fuel, a significant amount of the radioactive material contained within a cask must escape its packaging and enter the biosphere. There are two primary factors that protect the public health and safety from this event. The first is the design requirements for the cask that are imposed by regulation.

These general design criteria place an upper bound on the energy a cask can absorb before the fuel is damaged. No credible dynamic events have been identified that could impart such significant amounts of energy to a storage cask after that cask is placed at the ISFSI.

Additionally, there is a second factor which does not rely upon the cask itself but considers the age of the spent fuel and the lack of dispersal mechanisms. There exists no significant dispersal mechanism for the radioactive material contained within a storage cask.

Based on the design limitations, the majority of spent fuel is cooled greater than 5 years. At this age, spent fuel has a heat generation rate that is too low to cause significant particulate dispersal in the unlikely event of a cask confinement boundary failure.



Although the PNPS spent fuel analysis has not been able to identify any design-basis accident that would result in a failure of the confinement barrier for the dry storage casks or the irradiated fuel itself, the IOEP nonetheless requires augmentation of one person trained in radiological monitoring and assessment, who will report to the station within 4 hours of the emergency declaration for an event involving radiological consequences.

The proposed IOEP also provides that additional personnel resources may be directed to report to PNPS to provide additional support, as needed, to assess radiological conditions, support maintenance and repair activities, develop and implement corrective action plans, and assist with recovery actions. HDI states that augmentation personnel are available from PNPS staff, HDI, and from various contractors.

Based on the NRC staff's review of the PNPS IOEP, as described above, the NRC staff concludes that planning standards 10 CFR 50.47(b)(1) and (b)(2), and the requirements of Section IV.A of Appendix E to 10 CFR Part 50, as applicable, pertaining to timely augmentation of response capabilities and coping with radiological emergencies, are addressed in an acceptable manner in the PNPS IOEP, considering the permanently shutdown and defueled status of the facility, and the proposed transfer of all remaining spent fuel from the SFP to dry cask storage within the onsite ISFSI.

### 3.3.3 *Replacement of the "Shift Manager" title with the "ISFSI Shift Supervisor"*

In Section 6.1, "On-Shift Positions," of the IOEP, HDI has reassigned the following Emergency Director responsibilities from the Shift Manager to the ISFSI Shift Supervisor:

- Non-delegable responsibilities:
  - Classification of an event;
  - Approval of emergency notifications to the appropriate authorities and the NRC (the task of making the notifications may be delegated), and
  - Authorization of radiation exposures in excess of 10 CFR Part 20 limits.
- Other responsibilities assumed by the Emergency Director
  - Notification of the emergency classification to the appropriate authorities and NRC;
  - Management of available station resources;
  - Initiation of mitigative actions;
  - Initiation of mitigative, corrective, and onsite protective actions;
  - Decision to call for local law enforcement agencies, fire or ambulance assistance;
  - Augmentation of the emergency staff, as deemed necessary;
  - Coordination of security activities;
  - Termination of the emergency condition when appropriate;
  - Performance of initial radiological assessment;
  - Maintaining a record of event activities, and
  - Suspending security measures.

Section 19.0, "Emergency Response Personnel Training," of the IOEP provides the requirements for emergency preparedness training and identifies the level and the depth to which individuals are to be trained. The ISFSI Shift Supervisor/Emergency Directors and Resource Managers shall have training conducted on an annual basis such that proficiency is maintained on the topics listed below:

- EAL classification,
- Offsite notification procedures,
- ERO activation,
- Dose rate meter operation,
- Radioactive release assessment,
- Emergency exposure control,
- Protective actions for onsite personnel,
- ISFSI design-basis accidents, and
- Review of applicable drill and exercise-identified deficiencies.

The NRC staff's evaluation verified the retitled position of ISFSI Shift Supervisor is on-shift at the PNPS site 24-hours a day / 7 days a week and serves as the senior management position during off-hours. This position assumes overall command and control of the event response as the Emergency Director and is responsible for monitoring conditions and approving all onsite activities. The IOEP clearly identifies non-delegable responsibilities, along with other designated tasks, for the ISFSI Shift Supervisor. The NRC staff considers this retitling activity to be an administrative change that will not impact the timing or performance of existing emergency response duties.

Based on the NRC staff's review of the IOEP, as described above, the NRC staff concludes that planning standard 10 CFR 50.47(b)(2), pertaining to the adequate staffing to provide initial facility accident response, and 10 CFR Part 50, Appendix E, Section IV.A, as applicable, pertaining to the organization for coping with radiological emergencies is described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization, is addressed in an acceptable manner in the IOEP, considering the permanently shutdown and defueled status of the facility, and the proposed transfer of all remaining spent fuel from the SFP to dry cask storage within the onsite ISFSI.

#### 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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, which was published in the *Federal Register* on April 20, 2021 (86 FR 20526). Accordingly, the amendment meets the eligibility criteria for categorical exclusions set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10)(ii). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Commonwealth of Massachusetts official was notified of the proposed issuance of the amendment on September 23, 2021 (ADAMS Accession No. ML21266A251). The Commonwealth of Massachusetts official responded on October 14, 2021 (ADAMS Accession No. ML21287A619) and had no comments.

## 6.0 CONCLUSION

Based on review of the proposed IOEP and associated EAL scheme, the NRC staff finds that the proposed changes would continue to meet the applicable planning standards in 10 CFR 50.47(b) and the requirements in Appendix E of 10 CFR Part 50, as applicable. The NRC staff finds continued reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the PNPS facility. In addition, the NRC staff concludes that the PNPS IOEP will be consistent with the emergency planning requirements in 10 CFR Part 72 for an ISFSI not located on the site of an operating reactor. Therefore, the NRC staff concludes that the proposed PNPS IOEP provided as Attachment 2, "Updated PNPS Independent Fuel Storage Installation Only Emergency Plan (IOEP)," in the letter dated September 7, 2021 and associated updated EAL scheme provided as Attachment 2, "Updated PNPS ISFSI Only Emergency Actions Levels (EALs) and Technical Basis," in the letter dated September 17, 2021, are acceptable.

The NRC staff 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 continues to be 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.

## 7.0 REFERENCES

1. Letter, Entergy Nuclear Operations, Inc. to U.S. Nuclear Regulatory Commission, "Certifications of Permanent Cessation of Power Operations and Permanent Removal of Fuel from the Reactor Vessel," dated June 10, 2019, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19161A033)
2. U.S. Nuclear Regulatory Commission, "Order Approving Direct and Indirect Transfer of License and Conforming Amendment," dated August 22, 2019 (ADAMS Accession No. ML19170A147).
3. Letter, Holtec Decommissioning International, LLC to U.S. Nuclear Regulatory Commission, "License Amendment Request to Approve the Pilgrim Nuclear Power Station Independent Spent Fuel Storage Installation Only Emergency Plan," dated February 18, 2021 (ADAMS Accession No. ML21049A192).
4. Letter, Holtec Decommissioning International, LLC to U.S. Nuclear Regulatory Commission, "Supplemental Information to Update - License Amendment Request to Approve the Pilgrim Nuclear Power Station Independent Fuel Storage Installation Only Emergency Plan," dated May 20, 2021 (ADAMS Accession No. ML21140A045).
5. Letter, Holtec Decommissioning International, LLC to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information (RAI) - License Amendment Request to Approve the Pilgrim Nuclear Power Station Independent Fuel Storage Installation Only Emergency Plan," dated July 29, 2021 (ADAMS Accession No. ML21210A381).

6. Letter, Holtec Decommissioning International, LLC to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information (RAI) - License Amendment Request to Approve the Pilgrim Nuclear Power Station Independent Fuel Storage Installation Only Emergency Plan," dated September 7, 2021 (ADAMS Accession No. ML21250A345).
7. Letter, Holtec Decommissioning International, LLC to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information (RAI) - License Amendment Request to Approve the Pilgrim Nuclear Power Station Independent Fuel Storage Installation Only Emergency Plan," dated September 17, 2021 (ADAMS Accession No. ML21260A225).
8. Letter, U.S. Nuclear Regulatory Commission to Holtec Decommissioning International, LLC, "Pilgrim Nuclear Power Station - Exemptions from Certain Emergency Planning Requirements and Related Safety Evaluation," dated December 18, 2019 (ADAMS Accession Number ML19142A043).
9. NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, dated November 1980 (ADAMS Accession No. ML040420012).
10. NSIR/DRP-ISG-2, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants," dated May 11, 2015 (ADAMS Accession No. ML14106A057).
11. NUREG-2215, "Standard Review Plan for Spent Fuel Dry Storage Systems and Facilities," dated April 2020 (ADAMS Accession No. ML20121A190).
12. Nuclear Energy Institute (NEI) 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012 (ADAMS Accession No. ML12326A805)
13. Letter, Mark Thaggard (NRC) to Susan Perkins-Grew (NEI), "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November 2012 (TAC No. D92368)," dated March 28, 2013 (ADAMS Accession No. ML12346A463).
14. Letter, U.S. Nuclear Regulatory Commission to Holtec Decommissioning International, "Pilgrim Nuclear Power Station – Issuance of Amendment No. 251 RE: Changes to the Emergency Plan and Emergency Action Level Scheme (EPID L-2018-LLA-0221)", dated January 2, 2020 (ADAMS Accession No. ML19274C674).
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