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

July 24, 2025

Ms. Jean A. Fleming
Vice President, Licensing,
Regulatory Affairs, and PSA
Holtec International, LLC
Krishna P. Singh Technology Campus
1 Holtec Boulevard
Camden, NJ 08104

SUBJECT: PALISADES NUCLEAR PLANT - ISSUANCE OF AMENDMENT NO. 278 RE: REVISE THE SITE EMERGENCY PLAN TO SUPPORT RESUMPTION OF POWER OPERATIONS (EPID L-2024-LLA-0060)

Dear Ms. Fleming:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 278 to Renewed Facility Operating License No. DPR-20 for the Palisades Nuclear Plant.

The amendment revises the Palisades Nuclear Plant Permanently Defueled Emergency Plan and emergency action level scheme to reflect the reauthorization of power operations at Palisades. The amendment approves the Palisades Nuclear Plant Power Operations Site Emergency Plan.

The NRC staff has separately reviewed and approved Holtec's license transfer application, exemption request, and three license amendment requests related to the resumption of power operations at PNP. The NRC staff is issuing its approval of these actions concurrently with its approval of this amendment to reauthorize power operations at PNP.

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

Sincerely,

/RA/

Justin C. Poole, Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosures:
1. Amendment No. 278 to DPR-20
2. Safety Evaluation

cc: Listserv

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

HOLTEC PALISADES, LLC

PALISADES ENERGY, LLC

DOCKET NO. 50-255

PALISADES NUCLEAR PLANT

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 278
Renewed License No. DPR-20

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

   A. The application for amendment by Holtec Decommissioning International, LLC[1], on behalf of Holtec Palisades, LLC, dated May 1, 2024, as supplemented by letters dated July 24, 2024, March 10, 2025, May 1,2025, and July 11, 2025, 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.

1 By letter dated July 24, 2025, the NRC issued Amendment No. 275, reflecting Palisades Energy, LLC, as the licensed operator (the licensee) for Palisades Nuclear Plant.

2. Accordingly, by Amendment No. 278 Renewed Facility Operating License No. DPR-20 is hereby amended to authorize revision to the Emergency Plan and Emergency Action Levels as set forth in the licensee's application dated May 1, 2024, as supplemented by letters dated July 24, 2024, March 10, 2025, May 1,2025, and July 11, 2025. Specifically, the staff is approving the Emergency Plan contained in Attachment 3, "Proposed Palisades Nuclear Plant Power Operations Site Emergency Plan," of the letter dated May 1, 2025, and the emergency action level (EAL) scheme, and site-specific EAL technical basis document provided in Attachment 4 to the letter dated May 1, 2025.

3. Accordingly, the license is also amended by changes to paragraph 2.F of Renewed Facility Operating License No. DPR-20 and is hereby amended to read as follows:

   F. The licensee is authorized to load fuel and perform low power testing, but may not exceed 5 percent of rated thermal power until, following the conduct of the exercise required by paragraph IV.F.2 of Appendix E to 10 CFR Part 50, the NRC notifies the licensee that the Federal Emergency Management Agency (FEMA): (1) has not identified any deficiencies in the state of offsite emergency preparedness; or (2) has informed the NRC that any offsite deficiencies have been corrected.

4. This license amendment is effective upon the licensee's submittal of a request to rescind the 10 CFR 50.82(a)(1) certifications and shall be implemented within 30 days from the amendment effective date.

FOR THE NUCLEAR REGULATORY COMMISSION

GREGORY BOWMAN

Digitally signed by GREGORY BOWMAN
Date: 2025.07.24 08:12:06 -04'00'

Gregory Bowman, Acting Director
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License

Date of Issuance: July 24, 2025

ATTACHMENT TO LICENSE AMENDMENT NO. 278

PALISADES NUCLEAR PLANT

RENEWED FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Renewed Facility Operating License No. DPR-20

Replace the following page of Renewed Facility Operating License No. DPR-20 with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating areas of change.

REMOVE	INSERT
Page 7	Page 7

(7) [deleted]

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

D. 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.

E. Palisades Energy 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: "Palisades Nuclear Plant Physical Security Plan."

Palisades Energy 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. The licensee is authorized to load and perform low power testing, but may not exceed 5 percent of rated thermal power until, following the conduct of the exercise required by paragraph IV.F.2 of Appendix E to 10 CFR Part 50, the NRC notifies the licensee that the Federal Emergency Management Agency (FEMA): (1) has not identified any deficiencies in the state of offsite emergency preparedness; or (2) has informed the NRC that any offsite deficiencies have been corrected.

G. Holtec Palisades and Palisades Energy 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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 278 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-20

HOLTEC PALISADES, LLC

PALISADES ENERGY, LLC

PALISADES NUCLEAR PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By application dated May 1, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24122C666), as supplemented by letters dated July 24, 2024, March 10, 2025, May 1,2025, and July 11, 2025 (ML24206A187, ML25070A029, ML25121A127, and ML25192A144, respectively), Holtec Decommissioning International, LLC (HDI), on behalf of Holtec Palisades LLC[2] (collectively, Holtec), requested U.S. Nuclear Regulatory Commission (NRC, the Commission) review and approval of a license amendment request (LAR) to revise the Palisades Nuclear Plant (PNP or Palisades) Renewed Facility Operating License DPR-20. Specifically, the proposed LAR would revise the PNP Permanently Defueled Emergency Plan and emergency action level (EAL) scheme to reflect the reauthorization of power operations at PNP. The proposed PNP Emergency Plan and EAL scheme will establish an updated licensing basis for PNP.

The supplemental letters dated July 24, 2024, March 10, 2025, May 1, 2025, and July 11, 2025, provided additional information that clarified the application, 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* on August 7, 2024 (89 FR 64486).

1.1.1 Background Related to Holtec's Requests to Reauthorize Power Operations at Palisades

By letter dated January 4, 2017 (ML17004A062), pursuant to 10 CFR 50.82(a)(1)(i), Entergy Nuclear Operations, Inc. (Entergy), the previous licensee for PNP, certified to the NRC that it decided to permanently cease power operations at the PNP by October 1, 2018. By letters

2 On July 24, 2025, the NRC issued an order approving and conforming amendment reflecting the transfer of operating authority from HDI to Palisades Energy, LLC (Package ML25167A245). Holtec Palisades, LLC, remains the licensed owner of PNP.

dated September 28, 2017 (ML17271A233), and October 19, 2017 (ML17292A032), Entergy certified to the NRC that it planned to permanently cease power operations at PNP no later than May 31, 2022. By application dated December 23, 2020 (ML20358A075), as supplemented, Entergy on behalf of itself, Entergy Nuclear Palisades, LLC; Holtec International; and HDI submitted a license transfer request to transfer the PNP license from Entergy to Holtec. By letter dated December 13, 2021 (ML21292A145), the NRC issued an order consenting to the license transfer.

On May 20, 2022, PNP permanently ceased power operations. Pursuant to 10 CFR 50.82(a)(1)(ii), by letter dated June 13, 2022 (ML22164A067), Entergy certified to the NRC that all fuel had been permanently removed from the PNP reactor vessel and placed in the spent fuel pool (SFP) on June 10, 2022. These certifications were docketed by the NRC. Upon docketing the 10 CFR 50.82(a)(1) certifications, 10 CFR 50.82(a)(2) no longer authorizes operation of the PNP reactor, or emplacement or retention of fuel into the PNP reactor vessel. Shortly after PNP transitioned to a permanently shutdown and defueled facility in accordance with 10 CFR 50.82(a)(2), Holtec Palisades, LLC assumed ownership of PNP, and HDI became the licensed operator for decommissioning PNP (ML22173A173) and began the decommissioning process.

In early 2023, HDI engaged with the NRC staff regarding the potential restart of reactor operation at PNP. By letter dated March 13, 2023 (ML23072A404), HDI submitted its proposed regulatory path to resume power operations at PNP through a series of licensing and regulatory actions to restore the plant's licensing basis to the one in effect just prior to permanent shut down.

Specifically, from September 2023 to May 2024, the NRC received the following licensing and regulatory requests related to the potential restart of Palisades:

- A September 28, 2023, request for an exemption “from the 10 CFR 50.82(a)(2) restriction that prohibits reactor power operations and retention of fuel in the reactor vessel … by allowing for a one-time rescission of the docketed 10 CFR 50.82(a)(1) certifications.” (ML23271A140) (Exemption Request).

- A December 6, 2023, license transfer application, seeking NRC consent to, and a conforming amendment for, a transfer of operating authority from HDI to Palisades Energy, LLC under Renewed Facility Operating License No. DPR-20 for Palisades and the general license for the Palisades Independent Spent Fuel Storage Installation (ISFSI) (ML23340A161) (License Transfer Application).

- A December 14, 2023, license amendment request in support of resuming power operations that largely seeks to undo the changes made by the previously issued permanently defueled technical specifications amendment with some proposed differences from the previous operating reactor technical specifications (ML23348A148) (Power Operations TS Amendment).

- A February 9, 2024, license amendment request in support of resuming power operations that largely seeks to undo the changes made by the previously issued defueled administrative controls amendment with some proposed differences from the previous operating reactor technical specifications (ML24040A089) (Administrative Controls Amendment).

- A May 1, 2024, license amendment request to revise the Palisades site emergency plan to support resuming power operations (ML24122C666) (Emergency Plan Amendment).

- A May 24, 2024, license amendment request to revise the Palisades main steam line break analysis to "support the Palisades restart project." (ML24145A145) (MSLB Amendment).

While the Emergency Plan Amendment is a necessary part of Holtec's regulatory approach to support restoration of the PNP power operations licensing basis, the NRC's approval of this amendment is not sufficient to authorize operation of the reactor, or emplacement or retention of fuel into the reactor vessel. NRC approval of all of the licensing and regulatory requests listed above is necessary to restore the PNP power operations licensing basis and reauthorize power operations at PNP. As discussed in Section 2.3 below, the other licensing and regulatory actions described above were reviewed separately by the NRC staff and are being issued concurrently with this amendment.

In February 2025, Holtec submitted two additional license amendment requests that Holtec states are necessary for the resumption of power operations at PNP. These amendments would revise technical specifications to support repairing of steam generator tubes by sleeving and revise PNP's licensing basis to incorporate a leak-before-break methodology (ML25043A348 and ML25035A216, respectively). In June 2025, Holtec submitted an amendment to revise the schedule in their license condition for full implementation of the NFPA-805 modifications (ML25175A275). These amendments are still currently under NRC review.

1.2 Background Related to Emergency Plan Amendment

By letter dated July 11, 2022 (ML22192A134), HDI requested exemptions in accordance with 10 CFR 50.12, "Specific exemptions" from specific portions of 10 CFR 50.47, "Emergency plans," paragraphs (b) and (c)(2); and, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The requested exemptions would allow PNP to reduce certain emergency planning requirements and subsequently revise the PNP Emergency Plan consistent with the permanently defueled condition of the station.

By letter dated July 12, 2022 (ML22193A090), as supplemented by letter dated November 8, 2022 (ML22312A451), HDI submitted the proposed PNP Permanently Defueled Emergency Plan and EAL scheme to the NRC in accordance with 10 CFR 50.54(q)(4), contingent on the NRC's approval of the exemptions from certain planning standards in 10 CFR 50.47(b) and certain requirements of Appendix E, Section IV, "Content of Emergency Plans," to 10 CFR Part 50. By letter dated December 22, 2023 (ML23263A977), the NRC granted HDI the requested exemptions. By letter dated December 27, 2023 (ML23236A004), the NRC-approved the PNP Permanently Defueled Emergency Plan and EAL scheme to reflect the permanently defueled condition. Holtec requested rescission of these exemptions separately as part of its Exemption Request.

2.0 REGULATORY EVALUATION

The regulatory requirements and guidance on which the NRC staff based its review are provided below.

2.1 Regulations

The NRC sets forth the emergency plan requirements for nuclear power reactors in 10 CFR 50.47. Specifically, 10 CFR 50.47(a)(1)(i) states, in part, the following:

> …no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

Additionally, 10 CFR 50.47(a)(2) states, in part, that the NRC will base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented. Section 50.47(a)(2) also states that a FEMA finding will primarily be based on a review of the plans.

The planning standards, as set forth in 10 CFR 50.47(b), establish the requirements that the onsite and offsite emergency response plans must meet for the NRC staff to make a finding that there is reasonable assurance that the licensee will take adequate protective measures in the event of a radiological emergency.

Section IV.1 of Appendix E to 10 CFR Part 50, states, in part:

> …the emergency response plans submitted by an applicant for a nuclear power reactor operating license under this part, or for an early site permit (as applicable) or combined license under 10 CFR part 52, shall contain information needed to demonstrate compliance with the standards described in § 50.47(b), and they will be evaluated against those standards.

Section IV.F.2.a of Appendix E to 10 CFR Part 50, states, in part:

> A full participation exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located.

With respect to emergency action levels, the planning standard of 10 CFR 50.47(b)(4) requires:

> 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, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

With respect to emergency action levels, Section IV.B.2 of Appendix E, to 10 CFR Part 50 requires, in part,

> A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change.

The regulation in 10 CFR 50.47(d) states, in part:

> Insofar as emergency planning and preparedness requirements are concerned, a license authorizing fuel loading and/or low power testing and training may be issued after a finding is made by the NRC that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC will base this finding on its assessment of the applicant's onsite emergency plans against the pertinent standards in paragraph (b) of this section and appendix E.

The regulations in 10 CFR 50.92, “Issuance of amendment” state, in part, that in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate.

2.2 Guidance

NUREG-0654/FEMA-REP-1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Revision 2, (hereafter referred to as NUREG-0654) dated December 2019 (ML19347D139), provides guidance and specific acceptance criteria that the NRC has determined is an acceptable means of complying with the planning standards in 10 CFR 50.47, “Emergency plans.” These criteria provide a basis for NRC licensees (and applicants), and State and local governments to develop acceptable radiological emergency preparedness plans. For the purposes of this safety evaluation (SE), NUREG-0654 refers to Revision 2 unless otherwise noted.

Revision 2 to NUREG-0654 revises the previous guidance in NUREG-0654/FEMA-REP-1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” dated November 1980 (ML040420012). NUREG-0654, Revision 1 and Revision 2, are both listed by NRC Regulatory Guide (RG) 1.101, Revision 6, “Emergency Planning and Preparedness for Nuclear Power Reactors,” dated June 2021 (ML21111A090), as acceptable approaches to the NRC for developing emergency preparedness and response plans.

As industry and regulatory experience were gained with the implementation and use of EAL schemes, the industry issued revised EAL scheme development guidance to reflect lessons learned, numerous of which have been provided to the NRC for review and endorsement as generic (i.e., non-site-specific) EAL development guidance.

The NRC considers the following methods acceptable for use in developing site-specific EALs that meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4), with the understanding that licensees may want to develop EALs that differ from the applicable guidance document as allowed in RG 1.101, Revision 6, dated June 2021 (ML21111A090):

- NUMARC/NESP-007, Revision 2, “Methodology for Development of Emergency Action Levels,” dated January 1992 (ML041120174);

- Nuclear Energy Institute (NEI) 99-01, Revision 4, “Methodology for Development of Emergency Action Levels,” dated January 2003 (ML041470143);

- NEI 99-01, Revision 5, “Methodology for Development of Emergency Action Levels,” dated February 2008 (ML080450149); and

- NEI 99-01, Revision 6, “Development of Emergency Action Levels for Non-Passive Reactors,” dated November 2012 (ML12326A805).

Although the EAL development guidance contained in NEI 99-01 is generic and may not be entirely applicable for some non-passive, large light-water reactor designs, it bounds the most typical accident and event scenarios for which emergency response is necessary, in a format that allows for industry standardization and consistent regulatory oversight. Licensees may choose to develop site-specific EAL schemes using NEI 99-01 with appropriate site-specific alterations as applicable.

The NRC Regulatory Issue Summary (RIS) 2003-18, “Use of NEI 99-01, ‘Methodology for Development of Emergency Action Levels,’” Revision 4, dated October 8, 2003, including Supplements 1 and 2 (ML032580518, ML041550395, and ML051450482, respectively), also provides guidance for developing or changing a standard EAL scheme. In addition, this RIS and its supplements provide recommendations to assist licensees, consistent with Section IV.B.2 of Appendix E to 10 CFR Part 50, in determining whether to seek prior NRC approval of deviations from the guidance.

Regardless of the generic EAL scheme development guidance document used by a licensee to develop their EAL scheme, or if a licensee chose to develop their EAL scheme using an alternative approach not endorsed by the NRC, or a combination of the two (most typical), the NRC will review the EAL scheme to ensure it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

2.3 NRC Staff’s Consideration of the Licensing and Regulatory Requests Related to the Reauthorization of Power Operations at PNP

The NRC staff’s consideration of all restart-related requests is governed by Commission-established policy on the reauthorization of reactor operations for plants in decommissioning. In denying a petition for rulemaking, Criteria to Return Retired Nuclear Power Reactors to Operations, (86 FR 24362; May 6, 2021), the Commission stated that “the NRC may consider requests from licensees to resume operations under the existing regulatory framework.” Further, the Commission stated that, “[i]f the NRC receives a request from the licensee for a decommissioning reactor to resume operations, the NRC would review the request consistent with applicable regulatory requirements. This review would include consideration of relevant safety standards to assure adequate protection of public health and safety.” In CLI-25-3, related to the License Transfer Application, the Commission reaffirmed its policy that the NRC may consider licensee requests to resume operations under the existing regulatory framework (ML25119A109).

As discussed in Section 2.3 of the NRC staff’s SE approving the Power Operations TS Amendment (ML25157A127), the staff has concluded that a licensee in decommissioning may seek the restart of reactor operation by applying to use relevant processes within the existing regulatory framework, including the license amendment, license transfer, and exemption processes. Accordingly, separate from this SE, the NRC staff has reviewed and approved the Exemption Request (ML25163A182), License Transfer Application (ML25167A245), Power Operations TS Amendment, Administrative Controls TS Amendment (ML25157A107), and MSLB Amendment (ML25156A045). The staff is issuing its approval of these actions

concurrently with its approval of this LAR (Emergency Plan Amendment) to reauthorize power operations at PNP.

3.0 TECHNICAL EVALUATION

3.1 Emergency Plan Technical Evaluation

Holtec stated in part,

> The proposed POSEP [Power Operations Site Emergency Plan] is a complete replacement of the current PDEP [Permanently Defueled Emergency Plan], that was approved by the NRC via letter dated December 27, 2023 [ML23236A004] and implemented at PNP in January 2024. The proposed POSEP will establish an updated licensing basis that complies with current NRC regulations in 10 CFR 50.47 and Appendix E to 10 CFR Part 50 for a power operations facility. Although the proposed POSEP will replace the PDEP in its entirety, it is primarily a reorganization and an enhancement of the content of PNP SEP [Site Emergency Plan] Revision 32 (effective date of October 10, 2019) [ML19312A447], that was in effect just prior to the 10 CFR 50.82(a)(1) certifications, to conform to the 16 emergency planning standards found in regulations at 10 CFR 50.47(b) and presented in NUREG-0654/FEMA-REP-1.

Holtec further states that the format of the proposed PNP Emergency Plan conforms to the format of the regulatory guidance provided NUREG-0654, Revision 2.

The NRC staff has reviewed Holtec's regulatory and technical analyses in support of the proposed changes to the PNP Emergency Plan as described in the LAR and supplemental letters. The NRC staff's technical evaluation is structured to reflect the evaluation criteria in Section II, "Planning Standards and Evaluation Criteria," of NUREG-0654. The following discussion provides the results of NRC staff's review of the proposed PNP Emergency Plan and the staff's finding that all 16 planning standards listed below and the associated evaluation criteria of NUREG-0654 are met:

A. Assignment of Responsibility,
B. Emergency Response Organization,
C. Emergency Response Support and Resources,
D. Emergency Classification System,
E. Notification Methods and Procedures,
F. Emergency Communications,
G. Public Education and Information,
H. Emergency Facilities and Equipment,
I. Accident Assessment,
J. Protective Response,
K. Radiological Exposure Control,
L. Medical and Public Health Support,
M. Recovery, Reentry, and Post Accident Operations,
N. Exercises and Drills,
O. Radiological Emergency Response Training, and
P. Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans.

In its application dated May 1, 2024, and supplemental letters, Holtec referred to their emergency plan as “Palisades Nuclear Plant Site Emergency Plan” or the “Palisades Power Operations Site Emergency Plan.” For the purposes of this evaluation, this safety evaluation will utilize the term “proposed PNP Emergency Plan” to refer to the emergency plan submitted by Holtec in its application dated May 1, 2024, and supplemental letters. The final reviewed version of the proposed PNP Emergency Plan is located in Attachment 3, “Proposed Palisades Nuclear Plant Power Operations Site Emergency Plan,” of the letter dated May 1, 2025 (ML25121A127).

3.1.1 Criterion II.A, “Assignment of Responsibility”

NUREG-0654, Evaluation Criterion II.A, addresses planning standard 10 CFR 50.47(b)(1), which states:

> Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

The requirements of 10 CFR 50.47(b)(1) are addressed in Section A, “Assignment of Responsibility,” of the proposed PNP Emergency Plan. The proposed PNP Emergency Plan identifies those Federal, State, local and private sector (contractors and private) organizations expected to respond in the event of an emergency at PNP, as well as their respective roles.

The proposed PNP Emergency Plan describes the assignment of responsibility to Holtec, and Federal, State and county organizations within the Emergency Planning Zones (EPZs) for PNP. For review purposes there are two EPZs considered for planning purposes. The first is a 10-mile plume exposure pathway planning zone and a second 50-mile ingestion pathway planning zone. The interrelationships between Holtec, State and county offsite response organizations (OROs), local services support (e.g., fire, medical and local law enforcement) and industry resources are illustrated in Figure B-4, “Interrelationship of Emergency Response Organizations,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that assistance will be provided, as necessary, by Federal response organizations and OROs that are mandated by charter, regulation, or law to protect public health and safety. Federal response organizations and OROs cooperate with PNP and have developed radiological emergency response plans and procedures in an integrated manner. Additional support agreements (Letters of Agreement (LOAs), Memorandum of Understanding (MOUs), etc.) are not required with these agencies. The organizations described in the proposed PNP Emergency Plan are capable of 24-hour response.

The proposed PNP Emergency Plan states that LOAs or MOUs are necessary when an organization or individual agrees to assist PNP and is not required otherwise to do so. To that extent, LOAs have been developed between PNP and several entities to provide emergency response support and services. These LOAs and MOUs are provided in Appendix 4, “Agreements with offsite Individuals, Agencies and Organizations,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan further states that PNP maintains a depth to the emergency response organization (ERO) that can provide continuous (24-hour per day)

operation throughout a declared emergency by providing relief of the on-shift and augmenting ERO positions by qualified individuals. The Emergency Director determines the shift rotation and ERO staffing for protracted ERO activations. The Emergency Director is the individual responsible for assuring continuity of resources (technical, administrative, and material) within the ERO.

Because the proposed PNP Emergency Plan provides information that describes the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs, the NRC staff finds that the information related to Evaluation Criterion II.A is acceptable in its identification of key responsibilities during a response.

3.1.1.1 Criterion II.A, Conclusion

Based on the staff's review and evaluation of the information provided in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has identified the primary responsibilities for emergency response by PNP, Federal, State and local organizations within the EPZs, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(1).

3.1.2 Criterion II.B, "Emergency Response Organization"

NUREG-0654, Evaluation Criterion II.B, addresses planning standard 10 CFR 50.47(b)(2), which states:

> On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

Section IV.A of Appendix E to 10 CFR Part 50 requires, 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 and the means for notification of such individuals in the event of an emergency.

The requirements of 10 CFR 50.47(b)(2) and the applicable requirements of Section IV.A of Appendix E to 10 CFR Part 50 are addressed in portions of Section B, "Emergency Response Organization," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan identifies the individuals who will oversee the emergency response in Table B-1, "On-Shift and Augmenting ERO Staffing Plan." It further identifies the responsibilities of key individuals responsible for command and control, alerting and notification, communications, public information, accident assessment, protective response (including the authority to request Federal assistance and to initiate other protective actions), and radiological exposure control.

The proposed PNP Emergency Plan states that the requirements for on-shift operations staff, security force staff, and fire brigade/first aid staff are controlled by Technical Specifications and other licensing and administrative documents. Positions from on-shift operations staff, security staff, and the fire brigade/first aid staff are described in the proposed PNP Emergency Plan only when assigned an emergency preparedness function.

The proposed PNP Emergency Plan states that normal plant staffing provides sufficient personnel for continuous protracted emergency operation. The extent to which the emergency organization is activated depends upon the classification of the emergency. The minimum on-shift staffing required to support emergency planning functions is presented in Table B-1 of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan provided the on-shift and minimum augmenting emergency response organization positions required for activation of the emergency response facilities in Section B.1.a.

The proposed PNP Emergency plan states that the Emergency Director has overall command and control of a declared emergency at PNP. The Shift Manager is the individual who is on-shift at all times and assumes the role of Emergency Director upon declaration of an emergency.

As Emergency Director, the Shift Manager has the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations (PARs) to authorities responsible for implementing offsite emergency measures. The Shift Manager maintains overall command and control until relieved by the Emergency Plant Manager.

The Emergency Plant Manager will relieve the Shift Manager of overall command and control, and the other key functions listed in Table B-1 at an Alert or higher emergency classification level until the Emergency Operation Facility (EOF) is activated and the EOF Emergency Director assumes command and control. The proposed PNP Emergency Plan defines the non-delegable responsibilities such as: emergency declaration, ORO and NRC notification, PARs for the general public, and emergency exposure (dose limits and potassium iodide (KI)). Approving departures from license conditions per 10 CFR 50.54(x) transitions from the Shift Manager to the Emergency Plant Manager upon transfer of command and control.

The proposed PNP Emergency Plan states that dependent upon the emergency, a near or on-site Incident Command Post is established in coordination with local support organizations. The Incident Command Post will interface with the PNP site security and the PNP emergency response facilities.

The proposed PNP Emergency Plan identifies the external organizations, including contractors that may be requested to provide technical assistance to and augmentation of the ERO.

The proposed PNP Emergency Plan describes the primary responsibilities of the ERO. The NRC staff verified that the proposed PNP Emergency Plan describes ERO staffing is based on the guidance in NUREG-0654. This description includes ERO facility staffing and primary emergency planning and preparedness responsibilities. Because the proposed PNP Emergency Plan provides a description of the primary responsibilities of the ERO, the NRC staff finds that the information related to Evaluation Criterion II.B is acceptable in its identification of the staffing to provide initial facility accident response in key functional areas.

3.1.2.1 Deviations from NUREG-0654 guidance

Holtec identified three deviations from the guidance of NUREG-0654, Table B-1 as part of proposed changes to the PNP Emergency Plan. These three deviations in the proposed PNP Emergency Plan consist of the use of remote responders for engineering and dose assessment functions, the elimination of the Information Technology (IT) Technicians ERO positions in the Technical Support Center (TSC) and EOF, and the elimination of the TSC Dose Assessor position.

Remote Responders

The proposed PNP Emergency Plan identifies remote response positions to perform specific ERO functions. It further describes the resources necessary to perform the functions and tasks assigned to the remote response positions, as well as a backup capability.

The proposed PNP Emergency Plan states that remote response positions are not required to physically manipulate plant equipment or take other physical actions at the site. Remote response positions are provided the resources to collaborate with ERO personnel in their assigned emergency facility. These resources provide:

- the ability to communicate audibly/visually between the emergency facility and the remote responder;
- the ability to access procedures, information, and data; and
- the ability to share screens/documents.

ERO members responding remotely to an emergency are capable of performing all functions and tasks assigned to their position, including support provided to other ERO members, as described in the emergency plan and implementing procedures. These positions support the on-shift staff prior to activation of the TSC and EOF.

The proposed PNP Emergency Plan includes the following remote response positions:

- Remote Dose Assessor,
- Reactor Engineer,
- Electrical/Instrument &Control (I&C) Engineer, and
- Mechanical Engineer.

The Reactor, Electrical/I&C and Mechanical engineering positions are assigned to the TSC, and the Remote Dose Assessor is assigned to the EOF.

Section 4.4.2, “Remote Response of Engineering and Dose Assessment Function,” of the LAR states that remote ERO positions can function from various locations based upon meeting a prompt response time and the depth of available communications and information resources. If a remote ERO member cannot perform the function due to a personal or technological issue, standard/current processes would be utilized to replace the ERO member as soon as possible or the remote ERO member can relocate to resolve any technical issues.

Additionally, section 4.4.2 states that remote ERO personnel can communicate with response and support personnel in the applicable facility (TSC or EOF), or other locations, through pre-established communication channels. The remote ERO personnel will have multiple means of

communication (phones, standard conference bridges, internet, video conferencing software, and/or any additional technology advancements) available to them to effectively interface and communicate. The diverse means of communication allows the remote ERO member to:

- report virtually to an ERO leadership position;
- obtain directions based on the priorities of the event;
- obtain information necessary to perform assigned functions and tasks; and
- provide necessary information to others.

Section 4.4.2 further states that individuals filling remote response positions will adhere to the Fitness-for-Duty (FFD) requirements in 10 CFR Part 26, "Fitness for Duty Programs," and appropriate procedures. Current PNP procedures and policies require ERO responders to certify they are fit-for-duty prior to assuming their emergency response duties. These same procedures and policies are applicable for the remote ERO personnel.

Section B.1.b of the proposed PNP Emergency Plan states that remote ERO responders can perform the assigned functions anywhere power and internet connectivity is available.

Because the Reactor, Mechanical, Electrical/I&C Engineers and Dose Assessor remote responders are able to access plant information, communicate with ERO personnel at the plant, are held to the same FFD standards, normally work at the site, and respond within 60 minutes of an Alert or higher emergency classification level, the NRC staff finds the use of remote engineering and remote dose assessment for these ERO functions respectively, is acceptable. Based on the above, the NRC staff concludes that the proposed deviation from the guidance of NUREG-0654, Table B-1 in the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(2) and the applicable requirements of Section IV.A of Appendix E to 10 CFR Part 50.

Elimination of the IT Technician ERO Positions:

The proposed PNP Emergency Plan does not assign IT Technicians to the TSC or the EOF/Joint Information Center (JIC). The proposed staffing deviates from the guidance in NUREG-0654. NUREG-0654, Table B-1 states that IT staffing is only required to be described in the emergency plan if critical digital assets (CDAs) are identified per 10 CFR 73.54, "Protection of digital computer and communication systems and networks." The purpose of the IT function is to provide support for computer-based equipment if relied upon to perform emergency plan functions.

Holtec states that it evaluated emergency preparedness related digital assets as part of implementation of the Cyber Security Rule, 10 CFR 73.54(b). In accordance with NEI 13-10, "Cyber Security Control Assessments," Revision 7,[3] dated October 2021 (ML21342A203), emergency preparedness CDAs have been assessed, and controls have been put in place to protect the assets against cyber-attack. In conjunction with these controls, alternate administrative, non-digital, or adequately independent means have been put in place for performing each emergency preparedness function, should the digital component fail.

Holtec further states that the proposed PNP Emergency Plan relies on computers for monitoring plant parameters, which have been determined to be CDAs. The IT process for remotely

[3] The NRC staff found NEI 13-10, Revision 7, acceptable for use in Regulatory Guide 5.71, "Cybersecurity Programs for Nuclear Power Reactors," Revision 1, dated February 2023 (ML22258A204).

monitoring and addressing issues with CDAs operates outside of the emergency plan on a continuous basis. Additionally, PNP maintains an IT Help Desk 24-hours-per-day, 7-days-per-week. Many computer issues are addressed remotely with an IT specialist through the Help Desk. In section 4.4.1, “IT Technician ERO Positions” of the LAR, Holtec states that PNP satisfies the intent of the guidance in NUREG-0654 because the PNP IT department provides continuous coverage, and redundancy exists for communication systems and digital EP assets.

In addition, Holtec states that minimum staff IT support is not needed based on acceptable performance of digital equipment during drills and exercises and redundancy of communication systems and digital emergency plan assets. The PNP EOF and TSC contain multiple computers and programs, which are used during training and are periodically tested. Performance of digital equipment used in support of the PNP Emergency Plan during drills and exercises, and through routine inventory and surveillance checks, has shown the equipment to be reliable. Performance of digital assets is monitored through either the Corrective Action Program or the drill and exercise critique process.

Because Holtec maintains an IT department process for 24-hours-per-day, 7-days-per-week coverage and built-in redundancy for communication systems and digital EP assets, the NRC staff finds the elimination of a minimum staff Information Technology function is acceptable. Based on the above, the NRC staff concludes that the proposed deviation from the guidance of NUREG-0654, Table B-1 in the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(2) and applicable requirements of Section IV.A of Appendix E to 10 CFR Part 50.

Elimination of the TSC Dose Assessor:

The purpose of the dose assessments/projections function is to perform dose assessments and projections, and provide input to the Emergency Director. NUREG-0654, Table B-1 identifies the dose assessment/projection function as an on-shift position and clarifies that: “[o]ther personnel may be assigned this function if no collateral duties are assigned to an individual that are beyond the capability of that individual to perform at any given time.” It further provides guidance that the on-shift dose assessor is relieved by one dose assessment individual in the TSC within 60 minutes of an Alert or greater emergency classification level and one dose assessment projection staff in the EOF within 60 minutes of a Site Area emergency or greater classification level.

The proposed PNP Emergency Plan does not assign a minimum staff TSC Dose Assessor ERO position to the dose assessments/projections function. This deviates from the NUREG-0654 guidance for minimum staff ERO positions.

Holtec states that the proposed PNP Emergency Plan requires simultaneous activation of the TSC and EOF at an Alert emergency classification level, thereby eliminating the need to transfer the function from on-shift staff to the TSC, then to the EOF. The dose assessments/projections responsibility transfers from the on-shift Dose Assessor directly to the EOF Radiological Assessment Coordinator but allows the TSC Radiological Assessment Coordinator to relieve the on-shift Dose Assessor if dose assessment cannot be performed in the EOF. The proposed PNP Emergency Plan transfers responsibility for the dose assessments/projections function from the on-shift Dose Assessor to the dedicated minimum staff EOF Remote Dose Assessor (reporting to the EOF Radiological Assessment Coordinator), making it unnecessary to staff a TSC Dose Assessor ERO position.

Additionally, Holtec states the minimum staff TSC and EOF Radiological Assessment Coordinator positions are qualified to perform dose assessment as a collateral duty, which provides additional resources for the dose assessments/projections function.

Because the proposed PNP Emergency Plan will retain dose assessment/projections function with the on-shift Dose Assessor until relieved by one remote Dose Assessor within 60 minutes of an Alert or higher emergency classification level and both the TSC and EOF are activated within 60 minutes of an Alert or greater classification, the NRC staff finds that the proposed change to the dose assessments/projections function is acceptable. Based on the above, the NRC staff concludes that the proposed deviation from the guidance of NUREG-0654, Table B-1 in the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(2) and applicable requirements of Section IV.A of Appendix E to 10 CFR Part 50.

3.1.2.2 Criterion II.B Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has defined on-shift responsibilities, provided for adequate staffing to always maintain initial accident response in key functional areas, included timely augmentation of response capabilities, and specified the interfaces among various onsite and offsite response activities and support. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(2) and the applicable requirements of Appendix E to 10 CFR Part 50.

3.1.3 Criterion II.C, "Emergency Response Support and Resources"

NUREG-0654, Evaluation Criterion II.C, addresses planning standard 10 CFR 50.47(b)(3), which states:

> Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

Section IV.A of Appendix E to 10 CFR Part 50 requires, 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 and the means for notification of such individuals in the event of an emergency.

Section IV.E of Appendix E to 10 CFR Part 50 requires, in part:

> Adequate provisions shall be made and described for emergency facilities and equipment….

The requirements of 10 CFR 50.47(b)(3) and Sections IV.A and VI.E of Appendix E to 10 CFR Part 50 are addressed in Section C, "Emergency Response Support and Resources," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that the EOF contains dedicated work areas and logistics resources for Federal and State response personnel. Federal and State personnel respond to the EOF in accordance with their emergency response plans and procedures.

The proposed PNP Emergency Plan states that the Emergency Director is the individual authorized to request assistance and resources from responding organizations. The Emergency Director is responsible for ensuring the response from external support organizations is coordinated with PNP and integrated into the overall response effort.

The proposed PNP Emergency Plan states that site access is controlled by the Security organization in accordance with the PNP Security Plan and procedures. The TSC Security Liaison is responsible for coordination with PNP security personnel when site access is needed for non-badged response personnel at an Alert or higher emergency classification level.

The proposed PNP Emergency Plan states that local support organizations may be requested to assist onsite for events requiring firefighting, medical response, or law enforcement. Immediate assistance with firefighting, medical, and law enforcement at PNP is initiated using pre-established communications systems. Agreements have been formally developed and documented through MOUs, contracts, and/or LOAs.

The proposed PNP Emergency Plan states that coordination of response actions and exchange of information among Emergency Directors from appropriate response organizations is provided via pre-designated communication links between PNP, the NRC, and ORO Emergency Operations Centers (EOCs).

The proposed PNP Emergency Plan states that the PNP laboratory and counting rooms have the capability to perform the analyses required under emergency conditions. The Michigan Department of Environment, Great Lakes, and Energy , Radiological Protection Section operates a radiological laboratory in Lansing. PNP and the Donald C. Cook Nuclear Plant may exchange services for radiological laboratory analyses, laboratory boron analyses, and backup dispersion meteorology information. Holtec further states that GEL Laboratory has agreed to provide the following services: collecting, analyzing, evaluating, and reporting on appropriate samples as needed for protective action information. GEL Laboratory maintains a laboratory in Charleston, South Carolina which has the capability to perform chemical and radiological analyses.

The proposed PNP Emergency Plan states that it is the responsibility of the EOF Emergency Director to dispatch and control offsite EOC liaisons.

The proposed PNP Emergency plan states the Emergency Plant Manager in the TSC and the EOF Emergency Director are the initial primary contact positions for the NRC site response team personnel sent to those facilities. Dedicated areas within the EOF and TSC are provided for NRC site response teams and include space for members of an NRC site team; space for conducting briefings with emergency response personnel; communication with other Palisades and offsite emergency response facilities; Access to plant data and radiological information; access to office equipment and supplies.

The proposed PNP Emergency plan states, when an emergency occurs, ERO personnel will ensure Emergency Response Data System operation as soon as possible but not later than 1 hour after an Alert or higher emergency classification level is declared, in accordance with 10 CFR 50.72(a)(4). The PNP ERO is staffed for, and capable of, maintaining continuous

communications with the NRC. When requested, PNP will staff open communications lines with knowledgeable personnel (i.e., personnel with a background in operations for the Emergency Notification System (ENS) line, and with a radiological background for the Health Physics Network (HPN) line) to ensure efficient and effective information flow from PNP to the NRC.

Because the proposed PNP Emergency Plan provides information for an integrated response and the process to request additional resources along with laboratory availability during a response, the NRC staff finds that the information related to Evaluation Criterion II.C is acceptable in its identification of resourcing and augmenting support during a response.

3.1.3.1 Criterion II.C Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has identified the arrangements for requesting and effectively using assistance resources, provided arrangements to accommodate State and local staff at Holtec's EOF, and identified other organizations capable of augmenting the planned response. Therefore, the NRC staff has determined that the PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(3) and the applicable requirements of Appendix E to 10 CFR Part 50.

3.1.4 Criterion II.D, "Emergency Classification System"

NUREG-0654, Evaluation Criterion II.D, addresses planning standard 10 CFR 50.47(b)(4), which states:

> 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, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Section IV.B.1 of Appendix E to 10 CFR Part 50 requires, in part:

> The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety.

Section IV.C.1 of Appendix E to 10 CFR Part 50 requires, in part:

> The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described. Emergency action levels (based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that

> indicate a potential emergency, such as the pressure in containment and the response of the Emergency Core Cooling System) for notification of offsite agencies shall be described.

The requirements of 10 CFR 50.47(b)(4) and the applicable requirements of Sections IV.B.1 and IV.C.1 of Appendix E to 10 CFR Part 50, are addressed in Section D, "Emergency Classification System," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan provides an overall discussion regarding classification of emergencies and the basis for emergency classification. The PNP EALs have been developed in accordance with NRC endorsed guidance. The specific instruments, parameters or equipment statuses that identify the overall severity of the emergency condition and the actions to be taken by the facility staff are identified in Emergency Plan Implementing Procedures (EPIPs). Detailed EALs are provided in an EPIP and an associated EAL Technical Bases Document.

The proposed PNP Emergency Plan states that PNP maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an EAL threshold has been met or exceeded. After the initial declaration of an emergency classification, the Emergency Director continually assesses the situation to determine the need to upgrade the emergency classification level or terminate the emergency.

A summary of emergency response measures for each emergency classification level is provided in Section D.3 of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that the PNP EAL scheme has been discussed with, and agreed to by, the State of Michigan, Van Buren County, Berrien County, and Allegan County. The EAL scheme is reviewed with these organizations on an annual basis. As discussed in section 3.2 of this SE, the NRC staff reviewed Holtec's proposed EAL scheme and finds that it is acceptable. Because the proposed PNP Emergency Plan provides information that describes the ability to provide timely declarations based on NRC-approved EALs and provides a summary of general actions taken at each emergency classification level, the NRC staff finds that the information related to Evaluation Criterion II.D is acceptable in its identification of standard emergency classification and action level scheme.

3.1.4.1 Criterion II.D Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has identified an acceptable emergency classification and action level scheme, the bases of which include facility system and effluent parameters in use by PNP and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures. Additionally, the NRC staff reviewed Holtec's proposed EAL scheme and found it to be acceptable as documented in section 3.2 of this SE. Therefore, the NRC staff has determined that the PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Appendix E to 10 CFR Part 50.

3.1.5 Criterion II.E, “Notification Methods and Procedures”

NUREG-0654, Evaluation Criterion II.E, addresses planning standard 10 CFR 50.47(b)(5), which states:

> Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

The requirements of 10 CFR 50.47(b)(5) are addressed in Section E, “Notification Methods and Procedures,” of the proposed PNP Emergency Plan.

The proposed PNP emergency plan states that the Emergency Director will direct or perform notification of the ERO for all emergency classification levels. ERO personnel report to their assigned emergency response facilities (ERFs) as directed. In the event of a security threat, personnel may be instructed to respond to alternative facilities or seek cover on-site. Notification to onsite personnel is accomplished by the PNP public address (PA) system while PNP uses an automated ERO notification system to notify ERO members of a declared emergency.

The proposed PNP Emergency Plan states that PNP, in cooperation with the OROs, has established mutually agreeable content, methods and procedures for notification of OROs. When an emergency classification level is initially declared, or upgraded, or changes are made to PARs, a notification to the OROs is made within 15 minutes. PNP will notify the NRC using ENS as soon as possible after notification of the OROs, and not later than 60 minutes after event declaration.

The proposed PNP Emergency Plan states that an accelerated call to the NRC will be made immediately after notification of local law enforcement agencies, or within about 15 minutes of the recognition of the security-based threat (discovery of an imminent threat or attack against the site) to ensure the NRC is notified of safeguards events.

The proposed PNP Emergency Plan states that PNP and the OROs utilize a public alert and notification system (ANS) capable of alerting and notifying the public within the PNP plume-exposure pathway EPZ.

The proposed PNP Emergency Plan states that the ANS provides coverage to the PNP plume-exposure pathway EPZ and notifies and alerts resident and transient populations to be notified of the issuance of a protective action within 15 minutes. The notification component consists of several local radio stations that disseminate information regarding an emergency at PNP and broadcast appropriate initial and follow-up messages regarding protective actions to be taken.

The proposed PNP Emergency Plan states that the Integrated Public Alert & Warning System (IPAWS)-Wireless Emergency Alerts (WEA) is the primary alert and notification method to alert and disseminate information regarding an emergency at PNP. Van Buren County incorporates IPAWS into its public warning structure through a MOA, which governs the relationship between the state-level Collaborative Operating Groups (COG), Van Buren COG, and the Federal Emergency Management Agency (FEMA). Detailed information regarding ANS capabilities is maintained in the ANS design report.

The proposed PNP Emergency Plan states that following receipt of an emergency declaration from PNP that requires public alerting, Van Buren County will activate IPAWS to alert and notify individuals in the PNP plume-exposure pathway EPZ. Van Buren County maintains multiple pathways to activate IPAWS. Additionally, it states that a MOU between Van Buren, Berrien, and Allegan Counties allows Berrien County to activate IPAWS if Van Buren County is unable to activate the system. The State of Michigan also maintains the capability to activate IPAWS for the entire PNP plume-exposure pathway EPZ.

The affected OROs utilize a commercial mass notification system as a backup means to alert and notify the public. In addition, the Emergency Alert System (EAS), activated via IPAWS, serves as a backup notification system for providing information and/or instructional messages to the public.

The proposed PNP Emergency Plan states that PNP and OROs have established the content of the initial notification and follow-up message to be used during an emergency. ORO procedures provide for initial and follow-up messages to the public including instructions for protective actions, if required. PNP will assist with establishment of appropriate instructions and message content when requested by the ORO and IPAWS provides the capability to periodically inform the public throughout the emergency.

Because the proposed PNP Emergency Plan provides information that describes methods and messages for alerting Holtec personnel, OROs, and the public during a response to a declared emergency, the NRC staff finds that the information related to Evaluation Criterion II.E is acceptable in its identification of timely communication during a response to a declared emergency.

3.1.5.1 Criterion II.E Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's application LAR and supplemental letters, the NRC staff concludes that Holtec has established procedures for notification of State and local response organizations and for notification of emergency personnel by all organizations, the content of initial and followup messages to response organizations and the public, and the means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(5).

3.1.6 Criterion II.F, "Emergency Communications"

NUREG-0654, Evaluation Criterion II.F, addresses planning standard 10 CFR 50.47(b)(6), which states:

> Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

The requirements of 10 CFR 50.47(b)(6) are addressed in Section F, "Emergency Communications," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that PNP maintains communications systems that are designed to facilitate normal and emergency communication. Provisions exist for continuous

capability of communications with OROs and the NRC. Systems available for internal and external communication include:

- Automated Notification System,
- Telephone Systems,
- Plant Siren and Plant Public Address System,
- Radio Communications,
- Cellular Telephones,
- Satellite Telephones,
- Local and Wide Area Networks, and
- Data Systems.

The proposed PNP Emergency Plan discusses methods for notification of response organizations. It further provides a Table F-1, “Palisades SEP Communications Matrix” that summarizes the communication methods between the various organizations, emergency response facilities, remote responders, and offsite response organizations.

The proposed PNP Emergency Plan states that personnel within the PNP Protected Area are notified of the emergency classification via the PNP PA system. The sounding of alarms and announcement of the emergency classification and other pertinent data relating to the emergency classification are made over the PA system. Notification of personnel located onsite, but outside the Protected Area, is accomplished through PA system announcements, administrative controls, and by Security personnel. PNP uses an automated ERO notification system to notify ERO members of a declared emergency. Multiple redundancies are incorporated such that the activation of the system can be performed by computer or from any phone system, and operation can take place from more than one location.

The proposed PNP Emergency Plan provides multiple methods for contacting offsite organizations including use of the ENS line telephone to the NRC. Additionally, it states that emergency call lists for ambulance service and medical facilities are kept current in the Emergency Contact Telephone Book.

The proposed PNP Emergency plan states that the communication systems testing is accomplished in accordance with the proposed PNP Emergency Plan Table F-3, “Communication System Testing Requirements.” Additionally, communications shall be tested monthly with NRC headquarters from the control room, TSC and near-site EOF and with State and local governments within the plume exposure pathway EPZ.

Because the proposed PNP Emergency Plan provides information that describes communication circuits used for communication with the NRC, State, and local organizations, the NRC staff finds that the information related to Evaluation Criterion II.F is acceptable in its identification of continuous and redundant communication capabilities.

3.1.6.1 Criterion II.F Conclusion

Based on the NRC staff’s review and evaluation of the information in Holtec’s LAR and supplemental letters, the NRC staff concludes that Holtec has established provisions for prompt communications among principal response organizations to emergency personnel and to the public. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(6).

3.1.7 Criterion II.G, “Public Education and Information”

NUREG-0654, Evaluation Criterion G addresses planning standard 10 CFR 50.47(b)(7), which states:

> Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

The requirements of 10 CFR 50.47(b)(7) are addressed in Section G, “Public Education and Information,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that PNP, in coordination with OROs, updates and distributes site-related emergency planning information annually to residents living within the plume-exposure pathway EPZ. Information disseminated to the public is in the form of printed or electronic materials. Public information for the transient population is also provided.

The proposed PNP Emergency Plan states that safety information is distributed annually containing educational information on emergency preparedness, sheltering, the alert and notification system, radiation, and telephone numbers of agencies to contact for more information.

The information provided may include the following topics:

- Notification methods, time required for notification;
- Public initial actions;
- Educational information on radiation;
- Contact points and locations for additional information, including news media or local broadcast stations;
- Protective measures; and
- Special needs of the handicapped.

The proposed PNP Emergency Plan states that information for residents with special needs and non-English translations is incorporated per current Federal guidance. This information can be disseminated to the public via varying methods. These methods may include direct mail of literature, information brochures contained in billing statements, telephone book inserts, electronic website or portable telephone applications and posting information documents in public areas.

The proposed PNP Emergency Plan states that arrangements are made for the exchange of information among the designated spokespersons using various means and technologies as agreed upon by the applicable agencies. Holtec will provide information and updates to the OROs and Federal public information officers (PIOs) to address the emergency, including plant conditions and associated response actions. Holtec communications personnel shall prepare and issue press releases in cooperation with State and local agencies.

The proposed PNP Emergency Plan states that a JIC is established at the combined EOF/JIC located at 330 W Main, Benton Harbor, Michigan. The JIC is staffed by public information representatives from PNP, State, county, and Federal governments. The Plant Communications Specialist will be located in this facility upon its activation. ERO staffing of the JIC is concurrent with other ERFs, although facility activation is coordinated with the joint offsite agencies and has no time requirement.

Section B.1.a of the proposed PNP Emergency Plan states that PNP maintains a process to operate a Joint Information System (JIS) and to support operation of the JIC. The JIS functions in accordance with the Communications Emergency Response Plan. Functions do not need to be performed in the JIC. The staffing of the JIC is concurrent with other PNP emergency response facilities (although facility activation is coordinated with the ORO public information personnel and has no time requirement). The JIC is staffed in coordination with offsite agencies while the JIS is established at the Alert or higher level.

The proposed PNP Emergency Plan states that PNP personnel coordinate with ORO and Federal PIOs via the JIS, or in the JIC when activated, to identify and address public inquiries and inaccurate information. Public information personnel monitor media and public sources for misleading or erroneous information and to address inquiries. Rumors and misinformation are collected and provided to the appropriate individual or agency PIO. The PIOs assess and discuss the rumors and misinformation to coordinate responses. The ORO and Federal PIOs address misinformation relating to offsite conditions, including protective action directives. Holtec spokespersons address misinformation regarding station/utility rumors. Rumors and incorrect information are addressed in media statements and at news conferences as appropriate.

The proposed PNP Emergency Plan states that the media will be provided materials to acquaint them with emergency planning efforts at PNP on an annual basis. Typical content includes site information, information concerning radiation, emergency planning, and points of contact for the release of information to the media during an emergency.

Because the proposed PNP Emergency Plan provides information that describes the annual dissemination of information to the public, engagement with news media, and the ability to respond to public inquiries during the response to a declared emergency, the NRC staff finds that the information related to Evaluation Criterion II.G is acceptable in its identification of public education and information.

3.1.7.1 Criterion II.G Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has established provisions for adequate public education and information to support the emergency response. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(7).

3.1.8 Criterion II.H, "Emergency Facility and Equipment"

NUREG-0654, Evaluation Criterion II.H, addresses planning standard 10 CFR 50.47(b)(8), which states:

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

The requirements of 10 CFR 50.47(b)(8) are addressed in Section H, “Emergency Facilities and Equipment,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that the TSC is located in the area immediately adjacent to the control room and includes the Shift Manager’s office, the viewing gallery hallway, and the adjacent open work area. The TSC will accommodate personnel who will provide technical support to Operations and control room personnel during emergency conditions. Complete record-keeping and communications capabilities have been installed. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures as either electronic or paper documents. The TSC provides communications to the control room, Operations Support Center (OSC), EOF, NRC, and OROs. The TSC may be activated for a Notification of an Unusual Event (Unusual Event), and will be activated for Alert, Site Area Emergency and General Emergency conditions. Habitability of the control room and the TSC is assured by the filtered ventilation system that serves this area. In addition, self-contained breathing apparatus are provided for up to eight individuals. An area radiation monitor in the viewing gallery area reads out in the control room to provide external dose rate data. Air sampling and analysis equipment are provided in the emergency equipment kits to monitor airborne radioactivity levels. Personal radiation dosimetry issued to some site personnel and visitors will provide individual radiation dose assessment data. If the TSC is not habitable, an alternate facility may be established at the OSC, Mechanical Maintenance Shop, or other site buildings.

The proposed PNP Emergency Plan states that the OSC is located near the men’s locker room in the Service Building that is connected to the rest of the plant by hallways. The function of the OSC is to assemble and coordinate necessary personnel from Chemistry, Radiation Protection, Operations (Nuclear Plant Operators), I&C, Electrical, and Mechanical. These groups will be dispatched for specific jobs as directed by the control room or TSC (when activated). The OSC provides communications to the control room, TSC, and emergency response teams. The OSC has access to drawings and other records, including general arrangement diagrams, P&IDs, electrical schematics and plant procedures as either electronic or paper documents. Habitability of the OSC is verified using available emergency kit equipment. Equipment is provided for measuring external dose rates and airborne radioactive levels. The OSC ventilation system is independent of the Auxiliary Building system. This minimizes airborne contamination as a result of events in the Auxiliary Building. In the event the OSC should not be habitable, alternate locations such as the Mechanical Maintenance Shop or permanent construction buildings are available for use.

The proposed PNP Emergency Plan states that the PNP EOF is located in downtown Benton Harbor, Michigan, approximately 16 miles south-southwest from PNP. The EOF assumes overall responsibility for Holtec’s emergency response and is designed to provide assistance in the decision-making process to protect the public health and safety, and to control radiological monitoring teams offsite. Specifically, the EOF serves as the primary location for the following functions:

- Coordinate emergency response activities with Federal, State, and local authorities.

- Coordinate support activities performed by personnel brought in to assist PNP personnel.
- Perform offsite dose assessment and field monitoring activities.
- Development of dose based offsite protective action recommendations.
- Coordination of emergency response activities with Federal, State, and local authorities.
- Coordination of radiological and environmental assessment activities with offsite agencies.
- Analysis of field monitoring data.
- Coordination for the collection sample media.
- Communicate with the NRC HPN line.
- Coordinate corporate support.
- Support site acquisition of external assistance (technical, craft, administration, etc.).
- Support site acquisition of equipment, supply, and logistic resources.

The proposed PNP Emergency Plan states that the EOF provides space for NRC, FEMA, State, and local representatives. Because the EOF is located outside the plume exposure EPZ, specialized ventilation systems and radiological monitoring are not required. Activation of the EOF is mandatory at the Alert, Site Area Emergency, and General Emergency classification levels. Activation of the EOF at an Unusual Event will be at the discretion of the Shift Manager. The EOF has the capability for the acquisition, display, and evaluation of plant radiological and meteorological conditions necessary to perform accident assessment and determine protective measures. The EOF has access to drawings and other records, including general arrangement diagrams, P&IDs, electrical schematics and plant procedures as either electronic or paper documents. The EOF provides communications to the control room, TSC, field monitoring teams, NRC, and OROs.

The proposed PNP Emergency Plan states that the EOF provides an alternative facility, with communications capabilities for contacting the control room and plant security, to serve as a staging area for augmented ERO if the site is under threat of, or experiencing hostile action. An alternative facility provides a location for the staging of ERO personnel in the event of a security or hostile action threat to PNP. The alternative facility may also serve as an evacuation location for TSC and OSC personnel should those facilities become uninhabitable. The functions of offsite notification and PARs can be performed from the alternative facility. Emergency response team planning and preparation can be performed from the alternative facility.

The proposed PNP Emergency Plan states that a JIC is established at the combined EOF/JIC located at 330 W Main, Benton Harbor, Michigan. The JIC is staffed by public information representatives from Holtec, State, county, and Federal governments. The Plant Communications Specialist will be located in this facility upon its activation. ERO staffing of the JIC is concurrent with other ERFs, although facility activation is coordinated with the joint offsite agencies and has no time requirement.

The proposed PNP Emergency Plan states that PNP has installed instrumentation for seismic monitoring, radiation monitoring, hydrologic monitoring, meteorological monitoring, and fire/toxic gas/combustion products detectors in accordance with site current licensing basis documents.

The proposed PNP Emergency Plan states that meteorological information is displayed in the control room, TSC, and EOF. Onsite meteorological data is provided by a meteorological tower

located in the northeast sector of the site. This system is primarily concerned with providing data for estimating the actual or potential effects of an accidental, airborne release of radioactivity. The following data is available:

a. Wind direction and speed at 10 and 60 meters; and
b. Stability class.

The proposed PNP Emergency Plan states that severe weather warnings are provided to PNP by a private consultant. Predictions of sky to ground lightning, tornadoes, and wind speeds in excess of 40 mph are reported to the control room. Offsite meteorological monitoring is available from the National Weather Service which provides weather forecasts and certain meteorological data

The proposed PNP Emergency Plan states that PNP has a seismic monitoring system that supports the acquisition of data used for event recognition and declaration. Seismic information can be obtained from the National Earthquake Information Center at the U.S. Geological Survey.

The proposed PNP Emergency Plan states that process radiation monitors measure radioactive noble gas, iodine, and particulate concentrations in gaseous effluent pathways and gross radioactivity in other gaseous and fluid streams and are used for event recognition and declaration. Area radiation monitors measure in-plant dose rates and allow in-plant dose rate determinations to be made remotely. This information may be used to aid in the determination of plant accessibility for the protective action function. Data from these subsystems are displayed by readouts, annunciators, and recorders located in the control room. Portable airborne and area monitors are capable of being plugged into receptacles throughout the plant. Instrumentation power for the Radiation Monitoring System is supplied from a reliable source. Liquid and gaseous sampling systems, consisting of normal sampling systems and panels located throughout the plant, are used for event recognition and emergency declaration.

The proposed PNP Emergency Plan states that the fire detection system, consisting primarily of fire/smoke detectors, control panels, and annunciator panels, are used for event recognition and declaration. The fire protection system includes monitoring devices and fire suppression equipment and is detailed in the fire protection implementing procedures.

The proposed PNP Emergency Plan states that PNP maintains a supply of equipment, either at the site or the EOF, for two field monitoring teams assigned to perform onsite and offsite radiological monitoring and sampling functions. PNP maintains an emergency vehicle to provide transportation which is equipped with radio communications and equipment suitable for monitoring and/or sampling gaseous or liquid releases. The equipment and procedures supplied to the offsite team(s) provide the capability to sample for radioiodine in concentrations as low as 10^{-7} microcuries per cubic centimeter.

The proposed PNP Emergency Plan states that the emergency equipment and kits are inventoried to verify adequate supplies and materials, and to inspect condition semi-annually and following each use. While emergency equipment and instruments are checked semi-annually and prior to use if needed. Sufficient reserves of instruments and equipment are maintained to replace those removed from service for calibration or repair. Emergency Planning personnel are responsible for oversight of maintenance and testing of emergency equipment.

Because the proposed PNP Emergency Plan provides information that describes Holtec's primary and alternate ERFs, their locations, and their purposes, as well as equipment and instrumentation for evaluating a release of radioactive materials, the NRC staff finds that the information related to Evaluation Criterion II.H is acceptable in its identification of these facilities.

3.1.8.1 Criterion II.H Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has established provisions for adequate emergency facilities and equipment to support the emergency response. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(8).

3.1.9 Criterion II.I, "Accident Assessment"

NUREG-0654, Evaluation Criterion II.I, addresses planning standard 10 CFR 50.47(b)(9), which states:

> Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

The requirements of 10 CFR 50.47(b)(9) are addressed in portions of Section I, "Accident Assessment," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that the magnitude of a release of radioactive material to the environment is primarily identified directly by effluent monitors. Survey and sample analysis may also be used to determine the magnitude of a release. Indirect means such as core damage estimates and release pathway assumptions may be used to estimate the magnitude of a release of radioactive material. The isotopic composition of a release of radioactive material to the environment may be determined by: (1) effluent gaseous monitors, (2) survey and sample analysis, or (3) source term estimates based on core damage and release pathway assumptions.

The proposed PNP Emergency Plan states that PNP uses the Unified RASCAL Interface (URI) off-site dose projection computer model. The underlying dose assessment model in URI is the NRC RASCAL 4 model, based on the methods and equations documented in NUREG-1940, "RASCAL 4: Description of Models and Methods," dated December 2012 (ML13031A448). The URI model provides off-site radiological dose and dose rate estimates based on near real time or hypothetical inputs. Projected dose is based on the U.S. Environmental Protection Agency (EPA) document EPA-400-R-92-001, "PAG [Protective Action Guide] Manual: Protective Action Guides and Planning Guidance for Radiological Incidents," dose conversion factors and is provided as: (1) the total effective dose equivalent, (the sum of the effective dose equivalent from immersion, 4 days of ground deposition, and the committed effective dose equivalent from inhalation), and (2) the committed dose equivalent to the thyroid.

The proposed PNP Emergency Plan states that environmental surveys inside and outside the protected area are performed by field monitoring team members under the direction of the EOF Radiation Protection Coordinator. Field monitoring teams are directed to track and evaluate a radioactive plume by monitoring radiation levels and by obtaining and analyzing air samples.

Field monitoring team surveys and sampling may be performed at pre-identified locations or other geographic locations within the plume-exposure pathway EPZ determined during the event.

The proposed PNP Emergency Plan states that for the ingestion exposure pathway EPZ, field monitoring teams are used to obtain liquid effluent samples from radioactive liquid releases. Sample results are used in conjunction with the Offsite Dose Calculation Manual methods to estimate potential ingestion exposure in support of EAL determination. Also, liquid release monitoring activities are coordinated and sample results shared with ORO agency personnel to assist their determination in intermediate phase protective actions.

The proposed PNP Emergency Plan states that PNP field monitoring equipment has the capability to detect and measure airborne radioiodine concentrations as low as 10^{-7} microcuries per cubic centimeter in the presence of noble gases. Air samples will be taken with portable air sampling equipped with a Silver Zeolite or equivalent cartridge and particulate filter. Interference from the presence of noble gas and background radiation is minimized by ensuring that monitoring teams move to areas of low background prior to analyzing the sample cartridge.

The proposed PNP Emergency Plan states that source term present in reactor coolant, containment atmosphere, and SFP area atmosphere are estimated using effluent, process and area radiation monitor readings, comparison of plant conditions against design basis event scenarios, sample analysis and environmental survey results, and plant parameter indications as inputs into the dose assessment and core damage assessment processes.

Because the proposed PNP Emergency Plan provides information that describes methods for evaluating the magnitude of a release of radioactive materials, modeling of a release for dose assessment, and the use of field monitoring teams for verification, the NRC staff finds that the information related to Evaluation Criterion II.I is acceptable in its identification of key attributes for accident assessment.

3.1.9.1 Criterion II.I Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has established provisions for adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(9).

3.1.10 Criterion II.J, "Protective Response"

NUREG-0654, Evaluation Criterion II.J, addresses planning standard 10 CFR 50.47(b)(10), which states:

> A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic

basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

The requirements of 10 CFR 50.47(b)(10) are addressed in portions of Section J, “Protective Response,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that PNP provides a range of protective actions for all areas controlled by the site. Protective actions have been developed for radiological incidents and to protect personnel during hostile actions directed at the site. Provisions for control of access to PNP have been included in the Safeguards Contingency Procedures to take care of personnel entering for business purposes and for those who might inadvertently enter. Access to the exclusion areas is controlled by the PNP security force. Offsite support is provided by local and/or State law enforcement personnel. Site-wide notifications and announcements are routinely made using the PA system. Personnel on site are notified of a declared emergency through the PA system. Security personnel are used, as available, to augment PA announcements and to check areas in the owner controlled area for remaining individuals.

The proposed PNP Emergency Plan states that the emergency alarm, together with the PA system, is used to alert and notify onsite personnel of the need for assembly at a Site Area Emergency or General Emergency classification level (or earlier at the discretion of the Emergency Director). PNP ERO personnel will report to their assigned emergency response facility. Personnel accountability shall be completed in approximately 30 minutes. Specific assembly areas are designated in the EPIPs. All personnel shall be trained in the locations of the assembly areas or be escorted by an employee who is so trained. Following a hostile action event, the personnel accountability process is initiated following containment or cessation of the threat. Missing individual(s) will be identified by security personnel. Appropriate actions will be taken to locate missing individual(s). When necessary, search and rescue team(s) will be dispatched to locate and, if necessary, rescue missing individual(s). After initially completed, accountability will be maintained continuously throughout the emergency for personnel inside the Protected Area.

The proposed PNP Emergency Plan states that on-site personnel will evacuate the site when directed. Three potential routes are available: Plant access road to the east (primary evacuation route unless conditions dictate otherwise) and the beach to the north or south. Personnel who are evacuating are monitored for contamination, and, if possible and necessary, decontaminated before leaving the site. If conditions do not allow for decontamination of personnel on-site, they will be directed to designated offsite reception center(s) for radiological monitoring and decontamination, if required. If necessary, site personnel evacuating located outside the protected area will be monitored and decontaminated at an offsite reception center.

The proposed PNP Emergency Plan states that protective equipment and supplies are available to personnel remaining on site or arriving on site during the emergency to minimize the effects of radiological exposures or contamination in accordance with radiation protection procedures. Protective measures include the following: individual respiratory protection, individual thyroid protection, and protective clothing.

The proposed PNP Emergency Plan states that PNP has developed PARs, in accordance with agreements made with the State agencies, for the plume exposure pathway EPZ that include evacuation, sheltering, and recommendations for the prophylactic use of KI, as appropriate.

Applicable plume exposure pathway EPZ PARs of evacuation or shelter-in-place are developed at the General Emergency classification level and provided to the ORO personnel responsible for making protective action decisions. Local governments will provide notification to the general public and define and identify the affected population. The State government will give detailed directions for protection of this population, including provisions for evacuation of personnel from affected areas if necessary.

The proposed PNP Emergency Plan states that the most recent evacuation time estimate study is incorporated by reference into the PNP Emergency Plan.

Because the proposed PNP Emergency Plan provides information that describes the notification of onsite staff and visitors and the potential response actions for onsite personnel for a declared emergency; incorporates the ETE into the plan while identifying the requirements to conduct an update to the ETE study; and describes the requirement for developing PARs in conjunction with OROs, the NRC staff finds that the information related to Evaluation Criterion II.J is acceptable in its identification of key protective response actions and plans.

3.1.10.1 Criterion II.J Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has developed a range of protective actions for the plume exposure pathway EPZ for emergency workers and the public. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(10).

3.1.11 Criterion II.K, "Radiological Exposure Control"

NUREG-0654, Evaluation Criterion II.K, addresses planning standard 10 CFR 50.47(b)(11), which states:

> Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

The requirements of 10 CFR 50.47(b)(11) are addressed in Section K, "Radiological Exposure Control," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that element B.2.a indicates the responsibility for authorization of exposures to radiation in excess of 10 CFR Part 20 limits. Such authorizations are documented as part of the emergency exposure controls process provided in Element K.1.c. PNP implements exposure guidelines for emergency response personnel consistent with those published in Table 3-1, "Emergency Worker Guidelines," of EPA-400-R-92-001. The applicable guidelines are provided in Table K-1, "Guidance on Dose Limits for Workers Performing Emergency Services," of the PNP Emergency Plan.

The proposed PNP Emergency Plan states that radiation protection personnel in the OSC and TSC have the responsibility to monitor and assess the radiation doses received by ERO personnel on a 24-hour per day basis throughout a declared event. Personnel dose records are documented and managed using a computerized system. Should this system not be readily

accessible or available, personnel dose is manually recorded. Emergency worker exposure is monitored at the time of exposure using electronic dosimeters. If direct measurement of airborne concentrations is not available at time of exposure, workers will be provided respiratory protection, when feasible, and total exposures will be calculated after the fact using follow-up survey data and whole-body counting equipment.

The proposed PNP Emergency Plan states that the site access process into the Protected Area for local support organizations responding on site during an emergency is controlled by PNP security personnel. Non-PNP emergency workers supporting on-site activities will be issued dosimetry and/or be monitored by radiation protection personnel when responding to areas where a radiation dose may be received. Dosimeters are available and will be provided to offsite agency responders if they are required to enter a Radiological Controlled Area or are expected to receive a dose in excess of 100 millirem for the event.

The proposed PNP Emergency Plan states that all personnel dispatched into radiation areas or areas of unknown radiation levels are briefed on the task and environmental conditions and are provided appropriate monitoring and personnel protective equipment. Emergency workers are instructed regarding radiation effects and the risks involved for emergency doses. Only volunteers may receive doses in excess of the 25 rem dose limit in Table K-1. Emergency teams, including field monitoring teams, that must enter areas where they might be expected to receive higher than normal doses, are briefed on the task assigned and appropriate protective measures.

The proposed PNP Emergency Plan states that personnel decontamination is performed using normal radiation protection procedures in on-site facilities. Contamination on personnel will be removed in accordance with established radiation protection procedures. Onsite personnel decontamination facilities for emergency conditions are fully equipped with decontamination material. The decontamination facility at PNP is located in the Auxiliary Building. The decontamination facility consists of a shower, sink, and first-aid kits. Decontamination supplies and emergency equipment are located around the site. In an emergency situation, decontamination is the responsibility of the Radiation Monitoring Team. When decontamination of an area or equipment is required, personnel from Operations, Maintenance, and Radiation Protection will work jointly.

Because the proposed PNP Emergency Plan provides information that describes the methods used to monitor and minimize exposure to ERO or ORO personnel, the NRC staff finds that the information related to Evaluation Criterion II.K is acceptable in its identification of those key characteristics for exposure control.

3.1.11.1 Criterion II.K Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has established the means for controlling radiological exposures for emergency workers in an emergency. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(11).

3.1.12 Criterion II.L, “Medical and Public Health Support”

NUREG-0654, Evaluation Criterion II.L, addresses planning standard 10 CFR 50.47(b)(12), which states:

> Arrangements are made for medical services for contaminated injured individuals.

The requirements of 10 CFR 50.47(b)(12) criteria are addressed in portions of Section L, “Medical and Public Health Support,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that medical first-aid training is provided to designated members of the Plant emergency organization that, as a minimum, includes the Red Cross Multimedia course or equivalent, combined with the American Heart Association Cardiopulmonary Resuscitation course. This training for members of the plant staff also includes methods of handling contaminated patients and/or injuries. At least one person on each operating shift is required to have this first-aid training. PNP maintains first aid supplies, and equipment for the treatment of injured or contaminated/injured persons. There are first aid kits in appropriate areas of the plant. Accountability and inventory checks are performed quarterly and after use.

The proposed PNP Emergency Plan lists the primary and backup offsite medical facilities that arrangements have been made to provide for the medical treatment of the injured personnel that are contaminated, Bronson South Haven Hospital and Corewell Health Lakeland Hospitals respectively. Injured personnel are evaluated for radiological contamination prior to transport to a medical facility in accordance with site procedures. If contamination monitoring is not possible due to the medical condition of the individual, contamination monitoring is performed as soon as possible following treatment at the medical facility.

The proposed PNP Emergency Plan states that the Radiation Emergency Assistance Center/Training Site located in Oak Ridge, Tennessee, will respond to and/or provide advice and assistance to offsite medical facilities in the event of a severe radiation accident. Ambulance service for the transportation of accident victims, including radioactively contaminated victims, is provided by the Covert Township Fire Department, with backup services provided by the South Have Area Emergency Services and Medic 1 Ambulance of Benton Harbor, Michigan. Company vehicles maintained onsite and/or private vehicles can be used to transport injured and/or contaminated personnel for medical treatment. The Covert Township Fire Department ambulance personnel and the South Haven Area Emergency Services ambulance staff are trained in caring for radiologically contaminated victims.

The proposed PNP Emergency Plan states that the Shift Manager is responsible for the decision to request off-site medical support. The ambulance service shall be notified at the direction of the Shift Manager. Contact with the ambulance may be maintained through the respective medical service dispatcher. PNP personnel will assist with decontamination of transport vehicles if necessary.

Because the proposed PNP Emergency Plan provides information that describes onsite care and transportation and identifies the primary and backup hospitals ready to receive contaminated injured personnel, the NRC staff finds that the information related to Evaluation Criterion II.L is acceptable in its identification of key information needed for medical support during a response or incident.

3.1.12.1 Criterion II.L Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has made arrangements for medical services for contaminated injured individuals. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(12).

3.1.13 Criterion II.M, "Recovery, Reentry, and Post-Accident Operations"

NUREG-0654, Evaluation Criterion II.M, addresses planning standard 10 CFR 50.47(b)(13) which states:

> General plans for recovery and reentry are developed.

The requirements of 10 CFR 50.47(b)(13) are addressed in portions of Section M, "Recovery, Reentry, and Post-Accident Operations," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that transition to the recovery phase would occur in accordance with the [PNP internal] procedure EP-613, "Declared Emergency Recovery and Re-entry." When transition from an emergency to a recovery phase is necessary, the Emergency Director will designate a Recovery Manager and develop a recovery organization. The Emergency Director will inform the ERO, OROs, and NRC upon exiting the state of emergency and either returning to normal organizational control or entering recovery. Recovery after an emergency condition will be managed by the emergency organization unless conditions indicate that recovery will be complicated or will take a long period of time. At the discretion of the EOF Emergency Director, PNP will shift from an emergency organization structure to a Recovery Organization. The nature and extent of the emergency situation will determine what recovery operations are required. The Recovery Organization will be established as directed by the Recovery Manager.

The proposed PNP Emergency Plan states that the recovery activities would be managed much like a normal outage, except that certain activities unique to the post-accident situation may be controlled by the recovery organization. The recovery organization would function as a matrix management organization to coordinate activities with the normal company organization. This organization may be located at the EOF or at PNP, as appropriate. The primary positions in the recovery organization are shown in Figure M-1, "Long Term Recovery Organization," of the proposed PNP Emergency Plan.

Because the proposed PNP Emergency Plan provides general information for recovery operations and the expected coordination with offsite authorities, the NRC staff finds that the information related to Evaluation Criterion II.M is acceptable in its identification of recovery, reentry, and post-accident operations.

3.1.13.1 Criterion II.M Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has developed general plans for recovery and reentry. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(13).

3.1.14 Criterion II.N, “Exercises and Drills”

NUREG-0654, Evaluation Criterion II.N, addresses planning standard 10 CFR 50.47(b)(14), which states:

> Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

The requirements of 10 CFR 50.47(b)(14) are addressed in portions of Section N, “Exercises and Drills,” of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that an exercise is an event that tests the integrated capability and a major portion of the elements of the emergency plans and organizations. Over the period of the exercise cycle, exercises will test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public alert and notification system, and ensure that emergency organization personnel are familiar with their duties.

The proposed PNP Emergency Plan states that critiques of each drill and exercise will be held following each event to evaluate areas and identify issues. The critique is performed following the conclusion of a drill or exercise using preselected drill and exercise performance objectives. Critiques are performed in accordance with the [PNP internal] procedure EP-308, “Emergency Planning Critiques.” Provisions are made for Federal and ORO representatives to observe and participate in drill and exercise critiques when present.

The proposed PNP Emergency Plan states that PNP will conduct a plume exposure pathway EPZ exercise biennially. Specifically, the plume exposure pathway EPZ exercise is developed to provide the ERO with the opportunity to demonstrate proficiency in the principal functional areas of emergency response.

The proposed PNP Emergency Plan provides a description of the types of exercises and drills, frequency, as well as a description of the various required scenario elements to be conducted within the 8-year exercise cycle.

The proposed PNP Emergency Plan states that the frequency of the performance of communication tests are as follows:

- Communications shall be tested monthly with NRC headquarters from the control room, TSC and near-site EOF.
- Communications shall be tested monthly with State and local governments within the plume exposure pathway EPZ.
- Communication shall be tested quarterly with those Federal and State emergency response organizations within the ingestion pathway EPZ.
- Communication links with State Emergency Operations Center and field assessment teams from PNP shall be tested annually.

The proposed PNP Emergency Plan states that PNP will conduct an off-hour unannounced ERO report-in drill at least biennially to verify each minimum staffing ERO position meets the

required NUREG-0654 Table B-1 response time. The scope of the off-hours unannounced ERO report-in drill will require actual response to the assigned facility. Additionally, the notification is an all-call process. PNP will conduct an off-hour unannounced ERO call-in drill quarterly to verify each minimum staffing ERO position meets the required Table B-1 response times.

Because the proposed PNP Emergency Plan identifies the differences between drills and exercises, the requirements for formal critiques to develop corrective actions, the requirement for the different exercise types to include a plume exposure pathway exercise, and call-in drills, the NRC staff finds that the information related to Evaluation Criterion II.N is acceptable in its implementation of exercise and drills.

3.1.14.1 Criterion II.N Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec will conduct periodic drills to evaluate major portions of emergency response capabilities, conduct periodic drills to develop and maintain key skills, and adequately correct deficiencies identified as a result of exercises or drills. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(14).

3.1.15 Criterion II.O, "Radiological Emergency Response Training"

NUREG-0654, Evaluation Criterion II.O, addresses planning standard 10 CFR 50.47(b)(15), which states:

> Radiological emergency response training is provided to those who may be called on to assist in an emergency.

The requirements of 10 CFR 50.47(b)(15) are addressed in portions of Section O, "Radiological Emergency Response Training," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that PNP personnel, including non-permanent personnel, receive training pertinent to the PNP Emergency Plan and EPIPs. Personnel who are assigned specific responsibilities during an emergency receive additional training appropriate to their respective assignments. The Training Manager is responsible for this training.

The proposed PNP Emergency Plan states that governance of Emergency Response Organization Training for PNP personnel is provided by [PNP internal] procedure TQ-110, "Emergency Response Organization Training." This procedure describes the responsibilities for conducting and administering initial and continuing emergency preparedness training; provides clarification and details to implement a remediation process; and follows the guidance for the systematic approach to training (SAT) Process. The SAT process determines the necessary periodicity of the retraining (continuing training) on a task-specific basis. However, initial training and retraining (at least annually) is conducted to ensure ERO personnel are properly qualified for their specific position.

The proposed PNP Emergency Plan states that besides general ERO training, PNP has also identified specific areas: personnel responsible for the management of an emergency (Shift Manager, Emergency Director, and Emergency Plant Manager), personnel responsible for accident assessments, radiological monitoring teams and radiological analysis personnel (which

includes dose assessment, personnel monitoring, offsite radiological monitoring, and repair and damage control teams). Security personnel receive training as part of their normal job while those personnel assigned to a specific ERO position receive training on the emergency plan related tasks. Personnel who are assigned as first aid responders will maintain qualifications equivalent to Red Cross Standard First Aid techniques.

The proposed PNP Emergency Plan states that PNP offers emergency response training annually to local support organizations. Training includes basic radiation protection, the notification process for their organization, and their organization's expected role. The offered training for local support organizations who will enter the site also includes the general site layout, site access procedures, and the identity (by position and title) of the onsite individual who will control their support activities.

Because the proposed PNP Emergency Plan provides information on responsibility for the PNP ERO training program, coordination with OROs to provide training, and annual requalification and review of the training programs, the NRC staff finds that the information related to Evaluation Criterion II.O is acceptable in its identification of emergency response training.

3.1.15.1 Criterion II.O Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has established radiological emergency response training for those who may be called on to assist in an emergency. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(15).

3.1.16 Criterion II.P, "Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans"

NUREG-0654, Evaluation Criterion II.P, addresses planning standard 10 CFR 50.47(b)(16), which states:

> Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

The requirements of 10 CFR 50.47(b)(16) are addressed in Section P, "Responsibility for the Planning Effort," of the proposed PNP Emergency Plan.

The proposed PNP Emergency Plan states that training for the emergency preparedness staff at the site consists of an initial and continuing training process. The Site Vice President has the overall authority and responsibility for the PNP Emergency Plan. The Director, Site Services provides onsite oversight/supervision for emergency planning. The Manager, Emergency Planning, is directly responsible for emergency planning, including national emergency interfaces, and regulatory issues and is responsible for the development, maintenance, review, and updating of the emergency plan, as well as the coordination of the plan with other response organizations.

The proposed PNP Emergency Plan states that the formal PNP Emergency Plan (as defined in the introduction section) and the EPIPs (as defined under Element P.7 in the proposed PNP Emergency Plan) are reviewed on an annual basis and updated if necessary. Any changes to

regulations, issues identified by drills and exercises, assessments and audits, or other updates will be evaluated and incorporated into the emergency plan if warranted. Revised copies of the PNP Emergency Plan and implementing procedures are posted and distributed in accordance with PNP records management system procedures. When revisions to the PNP Emergency Plan affect offsite support agencies, they shall be notified as the changes occur.

The proposed PNP Emergency Plan states that LOAs, contracts, and signature pages made with off-site individuals, agencies, and organizations supporting the proposed PNP Emergency Plan will be reviewed and verified on an annual basis and updated if warranted.

The proposed PNP Emergency Plan states that the Emergency Planning Program elements are reviewed by personnel that have no direct responsibility for the implementation of the Emergency Planning Program, in accordance with 10 CFR 50.54(t). The review shall include the PNP Emergency Plan, EPIPs, training, drills and exercises, equipment, and interfaces with State and local governments. Records of the review shall be maintained for at least 5 years. PNPs Emergency Planning Department shall ensure State and local governments have access to appropriate findings.

The proposed PNP Emergency Plan states that the PNP emergency communications directory contains the contact numbers for ORO and support organizations identified in the emergency plan and implementing procedures. The ERO call-out system contains comprehensive ERO contact information. PNP ERO contact information is verified semi-annually and updated as needed. Facility and support contact information in the emergency communications directory is verified annually and updated as needed.

Because the proposed PNP Emergency Plan provides information on the responsibility for updating and reviewing emergency plans, including coordination with OROs, the NRC staff finds that the information related to Evaluation Criterion II.P is acceptable in its ability to maintain and update the emergency plan.

3.1.16.1 Criterion II.P Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff concludes that Holtec has identified the responsibilities for plan development/review, and for distribution of emergency plans, and that planners are properly trained. Therefore, the NRC staff has determined that the proposed PNP Emergency Plan meets the planning standard of 10 CFR 50.47(b)(16).

3.1.17 Conclusion

Based on the NRC staff's review and evaluation of the information in Holtec's LAR and supplemental letters, the NRC staff finds that the proposed PNP Emergency Plan meets the standards in 10 CFR 50.47(b), and the requirements in Appendix E to 10 CFR Part 50, and that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at PNP. Therefore, the NRC staff concludes that the proposed PNP Emergency Plan contained in Attachment 3, "Proposed Palisades Nuclear Plant Power Operations Site Emergency Plan," of the letter dated May 1, 2025, is acceptable.

3.2 Emergency Action Level Scheme Technical Evaluation

Holtec states that the PNP Emergency Plan and emergency classification scheme currently in effect to respond to emergencies at PNP reflect previously approved exemptions from certain requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 based on the permanently defueled condition following a sufficient decay of the spent fuel, such that the risk of an offsite radiological release is significantly lower, and the types of possible accidents are significantly fewer, than postulated for an operating nuclear reactor.

Holtec further states in part:

> The proposed changes in this amendment request include reinstating the version of the PNP EAL scheme that was in effect just prior to the 10 CFR 50.82(a)(1) certifications. This proposed PNP power operations EAL scheme is based on the last power operations emergency classification scheme that was approved by the NRC for PNP by letter dated May 26, 2011. It is based on the guidance provided in NEI 99-01, Revision 5, includes subsequent revisions made using the 10 CFR 50.54(q) change process evaluated against the PNP POLB [power operations licensing basis], and retains the current PDEP EAL associated with radiological events at the ISFSI.

In its LAR and supplemental letters, Holtec submitted the proposed PNP EAL scheme, the technical basis containing plant specific information and generic rationale for each proposed EAL, a comparison matrix providing a cross-reference relating the proposed EAL scheme to the EAL scheme in NEI 99-01, Revision 5, the EAL numbering scheme, and an explanation for any difference or deviation from NEI 99-01, Revision 5.

The NRC staff reviewed Holtec's LAR and supplemental letters and verified that the proposed EAL scheme is consistent with the guidance provided in NEI 99-01, Revision 5, to ensure that the proposed EAL scheme meets the planning standard 10 CFR 50.47(b)(4) and the requirements of Section IV.B.2 of Appendix E to 10 CFR Part 50. The NRC staff identified that the proposed EALs have modifications from the NEI 99-01, Revision 5, guidance due to specific plant design and licensee preference.

In reviewing Holtec's LAR and supplemental letters, the NRC staff also verified that the instrumentation and setpoints derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the site-specific implementation strategies provided, and are consistent with a standard EAL scheme.

Although the proposed EAL scheme is unique to PNP; the NRC staff conducted its review to ensure consistency and regulatory stability by verifying the following key characteristics of an effective EAL scheme are in place:

- Consistency (i.e., the EALs would lead to similar decisions under similar circumstances at different plants), up to and including standardization in intent, if not in actual wording;
- Human factors engineering and user friendliness;
- Potential for classification level upgrade only when there is an increasing threat to public health and safety;
- Ease of upgrading and downgrading the emergency classification level;

- Thoroughness in addressing and disposing of the issues of completeness and accuracy raised regarding Appendix 1 to NUREG-0654 Revision 1 (i.e., the EALs are unambiguous and are based on site specific indicators);
- Technical completeness for each classification level;
- Logical progression in classification for multiple events; and
- The use of objective and observable values.

To aid in understanding the nomenclature used in this SE, the following convention is used:

- The scheme's generic information is organized by Recognition Category in the following order.
- The Recognition Category letter is the first letter for EALs.
    - A – Abnormal Radiation Levels / Radiological Effluent.
    - C – Cold Shutdown / Refueling System Malfunction.
    - E – Independent Spent Fuel Storage Installation.
    - F – Fission Product Barrier Degradation.
    - H – Hazards and Other Conditions Affecting Plant Safety.
    - S – System Malfunction.
- The second letter signifies the emergency classification level.
    - U –Unusual Event.
    - A – Alert.
    - S – Site Area Emergency.
    - G – General Emergency.
- The number denotes the sequential subcategory designation from the plant-specific EAL scheme.

An EAL set refers to EALs within an EAL recognition category that include an escalation path for one or more emergency classification levels. Not all EAL Recognition Categories require an EAL set.

Attachment 4, "Proposed Power Operations Emergency Action Level Technical Bases," to the letter dated May 1, 2025, (ML25121A127), contains a revised version of the PNP EAL scheme for power operations based on responses to NRC staff's request for additional information and, is therefore, the version reviewed by the NRC staff for acceptability as described in the evaluation below.

3.2.1 Category 'A' – Abnormal Radiological Release/Radiological Effluent

3.2.1.1 EAL Set AU1/AA1/AS1/AG1

The intent of this EAL set is to ensure that an emergency classification level is declared upon site-specific indications of a release of radioactivity (gaseous or liquid). In recognition of the lower possible radioactivity concentrations, the assessment of liquid releases is limited to the Unusual Event and Alert classification levels. This EAL set provides for accident assessments using pre-calculated values based on assumed conditions, real time parameters, and field monitoring results. The NRC staff verified that the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

- AU1 – This EAL addresses a potential decrease in the level of safety of the plant as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period (e.g., an uncontrolled release).

- AA1 – This EAL addresses an actual or substantial potential decrease in the level of safety of the plant as indicated by a radiological release that exceeds regulatory commitments for an extended period of time.

- AS1 – This EAL addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to 10 percent of the EPA early phase PAGs (ML17044A073).

- AG1 – This EAL addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to the EPA early phase PAGs.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.1.2 EAL Set AU2/AA2/AS2/AG2

The intent of this EAL set is to ensure that an emergency classification level is declared upon site-specific indications of unplanned increases in radiation dose rates within plant buildings, or potential or actual damage to an irradiated fuel assembly or multiple assemblies. It addresses a lowering of water level over irradiated fuel or fuel uncovery (i.e., level below the top of the fuel), and a spectrum of fuel handling accidents that result in mechanical damage to irradiated fuel (e.g., a dropped fuel assembly). Some of these EALs rely on the SFP water level instrumentation required by 10 CFR 50.155, “Mitigation of beyond-design-basis events,” and the guidance in NEI 12-02, “Industry Guidance for Compliance with NRC Order EA-12-051, ‘To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation,’” Revision 1,[4] dated August 24, 2012 (ML122400399).

The NRC staff has verified that the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

[4] The NRC staff found NEI 12-02, Revision 1, acceptable for use in Regulatory Guide 1.227, “Wide-Range Spent Fuel Pool Level Instrumentation,” Revision 0, dated June 2019 (ML19058A013).

- AU2 – This EAL addresses a decrease in water level above irradiated fuel that causes elevated radiation levels or events that have resulted, or may result, in unplanned increases in radiation dose rates within plant buildings.

- AA2 – This EAL addresses events that have caused potential or actual damage to an irradiated fuel assembly or a significant lowering of water level within the refueling pathway or spent fuel pool.

- AS2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to fuel damage.

- AG2 – This EAL addresses a significant loss of SFP water inventory control and makeup capability leading to a prolonged uncovery of irradiated fuel.

In its LAR and supplemental letters, Holtec states that the proposed power operations EAL set is being revised to include emergency classifications and EALs for SFP levels that address the requirements of 10 CFR 50.47(b)(4) and 10 CFR 50.155(e).

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.1.3 EAL AA3

The intent of this EAL is to ensure that an emergency classification level is declared when elevated radiation levels in certain plant rooms and areas are enough to preclude or impede personnel from performing actions necessary to maintain normal plant operation or to perform a normal plant cooldown and shutdown. This includes equipment in the control room and the central alarm station. As such, it represents a potential degradation in the level of safety of the plant. This EAL is primarily intended to ensure that key Holtec ERO members and OROs are aware of the event, resources necessary to respond to the event are mobilized, and to ensure that any necessary compensatory measures are promptly implemented. The Shift Manager/Emergency Director should consider the cause of the increased radiation levels and determine if another Initiating Condition may be applicable.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.2 Category ‘E’ – Independent Spent Fuel Storage Installation

3.2.2.1 EAL EU1

The intent of this EAL is to ensure that an emergency classification level is declared when an event occurs that results in damage to the confinement boundary of a storage cask containing irradiated fuel. The emphasis for this classification is the degradation in the level of safety of the cask and not the magnitude of an associated dose, dose rate, or radioactivity release. This EAL is primarily intended to ensure that key ERO members and OROs are aware of the cask damage, resources necessary to respond to the event are mobilized, and protective measures, if warranted, are promptly implemented.

In its LAR and supplemental letters, Holtec states that the proposed power operations EAL is revised to eliminate the use of differing dose rates based on different cask designs and multiple certificates of compliance. This revision provides a simplified EAL that reduces the chance of human error (i.e., reduces the potential for an incorrect emergency declaration), while continuing to cover the spectrum of credible natural and man-made events included within the scope of an ISFSI design.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, and formatting, for this EAL are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.3 Category ‘C’ – Cold Shutdown/Refueling System Malfunction

3.2.3.1 EAL Set CU1/CA1

The intent of this EAL set is to ensure that an emergency classification level is declared upon a loss of available alternating current (AC) power to emergency power electrical buses.

The NRC staff verified that the progression from an Unusual Event to an Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of this EAL set, if appropriate, will be based on EALs in Recognition Category ‘A.’

- CU1 – This EAL describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to safety systems (typically classified as those systems that are safety-related, as defined in 10 CFR 50.2).

- CA1 – This EAL addresses a loss of all AC power that compromises the performance of all safety systems requiring electric power, including those necessary for residual heat removal, emergency core cooling, containment heat removal/pressure control, spent fuel heat removal, and the ultimate heat sink.

In its LAR and supplemental letters, Holtec states that the proposed power operations EAL technical bases retains the tables listing AC power sources, but recharacterizes these as example sources of AC power and includes alternate AC power sources (Diverse and Flexible Coping Strategies (FLEX) strategies). Based on plant operations experience, these tables provide helpful information to Plant Operators when classifying a loss of all AC power. Specifically, EALs CU1.1, CA 1.1, SU 1.1, SA 1.1, SS 1.1, and SG1.1 have been revised to include tables that provide examples of onsite and offsite power sources. The technical bases have been updated to discuss the availability of Diesel Generator 1-3 that can be used in an extended loss of all AC power. Additionally, the EAL technical bases have been updated to clarify that if mitigating strategies are successful in restoring power to the 2400 Volt AC safeguards buses 1C and 1D, then the pertinent emergency classification is not declared.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance, and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.3.2 EAL CU2

The intent of this EAL is to ensure an EAL is declared when a loss of direct current (DC) power event occurs as it compromises the ability of the licensee to monitor and control the removal of decay heat during Cold Shutdown or Refueling modes of operation.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.3.3 EAL Set CU3/CA3/CS3/CG3

The intent of this EAL set is to ensure an emergency classification level is declared upon a loss of reactor pressure vessel (RPV) inventory and/or primary coolant system (PCS) leakage.

The NRC staff verified that the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

- CU3 – This EAL addresses the inability to restore and maintain water level to a required minimum level (or the lower limit of a level band) or a loss of the ability to monitor RPV/PCS level concurrent with indications of reactor coolant leakage.

- CA3 – This EAL addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel in the RPV/PCS (i.e., a precursor to a challenge to the fuel clad barrier).

- CS3 – This EAL addresses a significant and prolonged loss of RPV/PCS inventory control and makeup capability leading to potential fuel damage.

- CG3 – This EAL addresses the inability to restore and maintain RPV/PCS level above the top of active fuel with containment challenged.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent

with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it c meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.3.4 EAL Set CU4/CA4

The intent of this EAL set is to ensure that an emergency classification level is declared based on the inability to maintain control of decay heat removal.

The NRC staff verified that the progression from an Unusual Event to an Alert classification level is appropriate and consistent with EAL scheme development guidance. Escalation of the emergency classification level would be via EAL CA3 based on an inventory loss or EAL CA4 based on exceeding its temperature duration or pressure criteria.

- CU4 – This EAL is a precursor of more serious conditions and is considered to be a potential degradation of the level of safety of the plant. This EAL addresses a loss of decay heat removal resulting in rapid increases in PCS temperatures and addresses a loss of the instrumentation needed to monitor PCS temperature and level.

- CA4 – This EAL addresses conditions involving a loss of decay heat removal capability or an addition of heat to the PCS in excess of that which can currently be removed.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.3.5 EAL CU5

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification level is declared if normal communication methods for onsite

and offsite personnel, or with OROs, including the NRC, are lost. This EAL is primarily intended to ensure that key Holtec ERO members and OROs are aware of the loss of communications capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are promptly implemented. Considering that a loss of emergency communications capability would not involve an actual or potential substantial degradation to the level of safety of the plant, no escalation path is necessary for this EAL.

The communication methods derived for this EAL are consistent with the overall EAL scheme development guidance.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, and formatting for this EAL are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.3.6 EAL CU6

The intent of this EAL is to highlight the significance of inadvertent criticality events by ensuring an EAL is declared if unplanned positive and sustained period is observed on nuclear instrumentation. Escalation of this EAL, if appropriate, would be by Emergency Director judgment.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.4 Category ‘H’ – Hazards

3.2.4.1 EAL Set HU1/HA1

The intent of this EAL set is ensure that an emergency classification level is declared based upon the effect natural and destructive hazards may have on plant structures or areas containing equipment necessary for a safe shutdown or has caused damage to the safety systems in those structures evidenced by control room indications of degraded system response or performance.

The progression from Unusual Event to Alert is appropriate and consistent with EAL scheme development guidance. Escalation of this EAL set, if appropriate, will be based on EALs in Recognition Category ‘S.’

- HU1 – This EAL addresses natural or destructive phenomena affecting the protected area.

- HA1 – This EAL addresses natural or destructive phenomena affecting vital areas.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for each emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.4.2 EAL Set HU2/HA2

The intent of this EAL set to ensure an emergency classification is declared based upon the magnitude and extent of fires and explosions that may be potentially significant precursors of damage to safety systems.

The progression from Unusual Event to Alert is appropriate and consistent with EAL scheme development guidance. Escalation of this EAL set, if appropriate, will be based on EALs in Recognition Category ‘S,’ ‘F,’ or ‘A.’

- HU2 – This EAL addresses a fire within the protected area not extinguished within 15 minutes of detection or an explosion within the protected area.

- HA2 – This EAL addresses a fire or explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, logical progression, ease of upgrading/downgrading, and formatting for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.4.3 EAL Set HU3/HA3

The intent of this EAL set is to ensure that an emergency classification is declared based upon the effect that a toxic, corrosive, asphyxiating or flammable gas release may have on the facility, which precludes or impedes access to equipment necessary to maintain normal plant operation or is required for a normal plant cooldown and shutdown. This condition represents a potential degradation of the level of safety of the plant. This EAL set is primarily intended to ensure that the Holtec ERO is activated to support the control room in removing the impediment to normal access to the affected area or room. Indications of a protracted loss of access to equipment necessary for normal plant operations, cooldown, or shutdown. Escalation of this EAL set, if appropriate, will be based on EALs in Recognition Category ‘S,’ ‘F,’ or ‘A.’

- HU3 – This EAL addresses the release of toxic, corrosive, asphyxiant or flammable gases of sufficient quantity to affect normal plant operations.

- HA3 – This EAL addresses the release of toxic, corrosive, asphyxiant or flammable gases of sufficient quantity that prohibit access to vital areas which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, logical progression, ease of upgrading/downgrading, and formatting for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.4.4 EAL Set HU4/HA4/HS4/HG4

The intent of this EAL set is to ensure that an emergency classification level is declared based upon a security-related event. Security plans and terminology are based on the guidance provided by NEI 03-12, “Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]” (ML11301A066).

The NRC staff also verified that the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

- HU4 – This EAL addresses a confirmed security condition or events that pose a threat to plant personnel or safety system equipment.

- HA4 – This EAL addresses the occurrence of a hostile action within the Owner Controlled Area or notification of an aircraft attack threat.

- HS4 – This EAL addresses the occurrence of a hostile action within the Protected Area.

- HG4 – This EAL addresses the occurrence of a hostile action resulting in a loss of physical control of the facility.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, logical progression, ease of upgrading/downgrading, and formatting for this EAL set are consistent with the overall EAL scheme development guidance and address the site-specific implementation strategies provided and are, therefore, consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.4.5 EAL Set HA5/HS5

The intent of this EAL set is to ensure that an emergency classification level is declared based upon a control room evacuation with the inability to control critical plan systems remotely.

The NRC staff verified that the progression from an Alert to a Site Area Emergency classification level is appropriate and consistent with EAL scheme development guidance. Escalation of this EAL set, if appropriate, will be based on EALs in Recognition Category 'F,' or 'A.'

- HA5 – This EAL addresses an evacuation of the control room that results in transfer of plant control to alternate locations outside the control room.

- HS5 – This EAL addresses an evacuation of the control room that results in transfer of plant control to alternate locations, and the control of the plan cannot be established in a timely manner.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.4.6 EAL Set HU6/HA6/HS6/HG6

The intent of this EAL set is to provide decisionmakers with an escalating emergency classification level path to consider when, in their judgment, entry into the site's emergency plan and mobilization of the Holtec ERO and ORO is warranted.

The NRC staff verified that the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

- HU6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of the Emergency Director, warrant declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an Unusual Event.

- HA6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of the Emergency Director, warrant declaration

of an emergency due to conditions existing that are believed to fall under the emergency classification level description for an Alert.

- HS6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of the Emergency Director, warrant declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a Site Area Emergency.

- HG6 – This EAL addresses unanticipated conditions not addressed explicitly elsewhere but, in the judgement of the Emergency Director, warrant declaration of an emergency due to conditions existing that are believed to fall under the emergency classification level description for a General Emergency.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and ease of upgrading/downgrading for this EAL set are consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5 Category ‘S’ – System Malfunction

3.2.5.1 EAL Set SU1/SA1/SS1/SG1

The intent of this EAL set is to ensure that an emergency classification level is declared based upon a loss of available AC power sources to the emergency buses.

The NRC staff verified that the progression from Unusual Event to General Emergency is appropriate and consistent with EAL scheme development guidance.

- SU1 – This EAL addresses a prolonged loss of offsite AC power.

- SA1 – This EAL describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to safety systems.

- SS1 – This EAL addresses a total loss of AC power that compromises the performance of all safety systems requiring electric power, including those necessary for residual heat removal, emergency core cooling, containment heat removal, and the ultimate heat sink.

- SG1 – This EAL addresses a prolonged loss of all power sources to AC emergency buses that compromises all plant safety systems requiring electric power including residual heat removal, emergency core cooling systems, containment heat removal and the ultimate heat sink leading to a loss of fuel clad, primary coolant system and containment.

In its LAR and supplemental letters, Holtec states that the proposed power operations EAL technical bases retains the tables listing AC power sources, but recharacterizes these as example sources of AC power and includes alternate AC power sources (Diverse And Flexible Coping Strategies (FLEX) strategies). Based on plant operations experience, these tables provide helpful information to Plant Operators when classifying a loss of all AC power. Specifically, EALs CU1.1, CA 1.1, SU 1.1, SA 1.1, SS 1.1, and SG1.1 have been revised to include tables that provide examples of onsite and offsite power sources. The technical bases have been updated to discuss the availability of Diesel Generator 1-3 that can be used in an extended loss of all AC power. Additionally, the EAL technical bases have been updated to clarify that if mitigating strategies are successful in restoring power to the 2400 Volt AC safeguards buses 1C and 1D, then the pertinent emergency classification is not declared.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.2 EAL SS2

The intent of this EAL is to ensure that an emergency classification level is declared when a loss of DC power event occurs as it compromises the ability to monitor and control plant safety functions. Prolonged loss of all DC power will cause core uncovering and loss of containment integrity when there is significant decay heat and sensible heat in the reactor system. Escalation of this EAL, if appropriate, will be based on EALs in Recognition Category ‘F,’ or ‘A.’

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL is consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that it is consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an

unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.3 EAL Set SU3/SA3/SS3/SG3

The intent of this EAL set is to ensure that an emergency classification level is declared based upon the effect that a failure of the reactor protection system may have on the plant, as well as inadvertent criticality for SU3.

The NRC staff verified that the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

- SU3 – This EAL addresses inadvertent criticality events indicating a potential degradation of the level of safety of the plant.

- SA3 – This EAL addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and subsequent operator manual actions taken at the reactor control consoles to shut down the reactor are successful as indicated by power less than or equal to five percent.

- SS3 – This EAL addresses a failure of the RPS to initiate or complete an automatic or manual reactor trip that results in a reactor shutdown, and manual actions do not shut down the reactor as indicated by power greater than five percent.

- SG3 – This EAL addresses a failure of the RPS to initiate or complete an automatic reactor trip that results in a reactor shutdown, all manual operator actions do not shut down the reactor as indicated by power greater than five percent, and continued power generation results in core exit thermocouple readings greater than 1200F or is challenging the capability to adequately remove heat from the core and/or the PCS.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.4 EAL SU4

The intent of this EAL is to ensure that an emergency classification level is declared when the plant is not brought into the required operating mode within the time allowed via their Technical Specifications Limiting Condition of Operation (LCO) action statement completion time.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL is consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that it is consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.5 EAL Set SU5/SA5/SS5

The intent of this EAL set is to ensure that an emergency classification level is declared based upon the effect that a loss of available indicators in the control room has on the facility.

The NRC staff verified that the progression from an Unusual Event to an Alert classification level is appropriate and consistent with EAL scheme development guidance.

- SU5 – This EAL addresses the difficulty associated with monitoring normal plant conditions without the ability to obtain safety system parameters from within the control room.

- SA5 – This EAL addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain Safety system parameters from within the control room or compensatory indications are unavailable.

- SS5 – This EAL addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain Safety system parameters from within the control room and compensatory indications are unavailable.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL set is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.6 EAL SU6

The intent of this EAL is to highlight the importance of emergency communications by ensuring that an emergency classification level is declared if normal communication methods for onsite and offsite personnel, or with State and local agencies, including the NRC, are lost. This EAL is primarily intended to ensure that key Holtec ERO members, State and local agencies, and the NRC are aware of the loss of communication capabilities, the resources necessary to restore communications are mobilized, and compensatory measures are promptly implemented. Considering that a loss of emergency communications capability would not involve an actual or potential substantial degradation to the level of safety of the plant, no escalation path is necessary for this EAL.

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, communication methods derived, and instrumentation and setpoints for this EAL is consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that it is consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.7 EAL SU7

The intent of this EAL is to ensure that an emergency classification level is declared when the plant has indications of fuel clad degradation. The indications for this EAL are redundant to

corresponding indicators from a loss or potential loss of fission product barriers, as well as radiation monitoring, to ensure reactor and/or fission product barrier events are recognized.

This EAL is primarily intended to ensure that key Holtec ERO members, State and local agencies, and the NRC are aware of significant challenges to fuel clad, and compensatory measures are promptly implemented. Escalation of this EAL, if appropriate, will be based on EALs in Recognition Category ‘F.’

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL are consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.5.8 EAL SU8

The intent of this EAL is to ensure that an emergency classification level is declared when the plant has indications of primary coolant system barrier degradation. The indications for this EAL are redundant to corresponding indicators from a loss or potential loss of fission product barriers, as well as radiation monitoring, to ensure reactor and/or fission product barrier events are recognized.

This EAL is primarily intended to ensure that key Holtec ERO members, State and local agencies, and the NRC are aware of significant challenges to the PCS leakage, and compensatory measures are promptly implemented. Escalation of this EAL, if appropriate, will be based on EALs in Recognition Category ‘F.’

Holtec chose to modify this EAL by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, and instrumentation and setpoints for this EAL is consistent with the overall EAL scheme development guidance and that they address the site-specific implementation strategies provided. The NRC staff determined that it is consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

The NRC staff has determined that the Holtec specific implementation method for this EAL is in alignment with the key characteristics of an effective EAL scheme, and while different than that

provided in the generic EAL development guidance, it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.6 Category 'F' – Fission Barrier Matrix

The intent of this EAL set is to ensure that an emergency classification level is declared upon a loss or potential loss of one or more fission product barriers. This EAL set uses plant condition-based thresholds as triggers within a particular logic configuration needed to reflect a loss or potential loss of a fission product barrier. Non-passive, large light-water reactors, like PNP, have three fission product barriers: reactor fuel clad, the primary coolant system, and containment. Licensees are required to develop thresholds that provide EAL decisionmakers input into making an event declaration based upon degradation of one or more of these fission product barriers.

There are numerous triggers used as logic inputs to decide on the appropriate emergency classification level based upon the number of loss and/or potential loss indicators that are met for each barrier. These indicators are redundant with other similar indicators in Recognition Categories 'A' and 'S.'

The NRC staff verified that the logic used to determine the appropriate emergency classification level is consistent with the generic EAL scheme development guidance in NEI 99-01, Revision 5. Additionally, the progression from an Unusual Event to a General Emergency classification level is appropriate and consistent with EAL scheme development guidance.

- FU1 – This EAL addresses any loss of any potential loss of containment.
- FA1 – This EAL addresses any loss or any potential loss of either the reactor fuel clad or PCS.
- FS1 – This EAL addresses loss or potential loss of any two barriers.
- FG1 – This EAL addresses loss of any two barriers and loss or potential loss of the third barrier.

Holtec chose to modify this EAL set by using a site-specific implementation method that uses a modified numbering format and EAL sequence other than that provided in the generic EAL scheme development guidance. The NRC staff verified that the numbering, sequencing, formatting, logical progression, ease of upgrading/downgrading, and instrumentation and setpoints for this EAL set are consistent with the overall EAL scheme development guidance, and that they address the site-specific implementation strategies provided. The NRC staff determined that they are consistent with a standard EAL scheme, as required by 10 CFR 50.47(b)(4). The NRC staff also verified that the EAL set is worded in an unambiguous manner that addresses human factors engineering and user friendliness concerns, is technically complete for this emergency classification level, and uses objective and observable values based on site-specific indications.

Based on the above, the NRC staff concludes that the site-specific implementation method for this EAL set is consistent with the key characteristics of an effective EAL scheme (identified in Section 4.4 above) and it meets the planning standard of 10 CFR 50.47(b)(4) and the applicable requirements of Section IV of Appendix E to 10 CFR Part 50.

3.2.7 EAL Scheme Conclusion

The NRC staff has reviewed the technical bases for the proposed EAL scheme, the modifications from NEI 99-01, Revision 5, and Holtec's evaluation of the proposed changes. Holtec chose to modify its proposed EAL scheme from the generic EAL scheme development guidance provided in NEI 99-01, Revision 5, to adopt a format that is better aligned with how it currently implements its EALs, as well as with site-specific writer's guides and preferences. The NRC staff verified that these modifications do not alter the intent of any specific EAL within a set, recognition category, or within the entire EAL scheme described in NEI 99-01, Revision 5.

The NRC staff determined that the proposed EAL scheme uses objective and observable values, is worded in a manner that addresses human factors engineering and user friendliness concerns, follows logical progressions for escalating events, and allows for event downgrading and upgrading based upon the potential risk to the public health and safety. Risk assessments were appropriately used to set the boundaries of the emergency classification levels and ensure that all EALs that trigger an emergency classification are in the same range of relative risk. In addition, the NRC staff determined that the proposed EAL scheme is technically complete and consistent with EAL schemes implemented at similarly designed plants.

The NRC staff verified that the instrumentation and setpoints derived for this proposed EAL scheme are consistent with the overall EAL scheme development guidance, address the site-specific implementation strategies provided, and are consistent with a standard EAL scheme.

Based on its review, the NRC staff finds that Holtec's proposed EAL scheme is acceptable and meet the guidance in NEI 99-01, Revision 5; the planning standard of 10 CFR 50.47(b)(4); and the requirements in Section IV.B.2 of Appendix E to 10 CFR Part 50. Specifically, the NRC staff concludes that Holtec's proposed EAL scheme, and site-specific EAL technical basis document provided in Attachment 4 to the letter dated May 1, 2025, is acceptable for implementation.

3.3 Evaluation of Offsite Emergency Preparedness

In accordance with 10 CFR 50.47(a)(2) the NRC consulted with FEMA to coordinate review of the adequacy of State and local emergency plans. In a letter dated June 27, 2025 (ML25181A198), FEMA provided the NRC with an interim reasonable assurance finding (interim finding) in accordance with Memorandum of Understanding between the Department of Homeland Security/FEMA and the NRC, "Regarding Radiological Response Planning and Preparedness" dated July 1, 2024 (ML24184A043). This interim finding is based upon FEMA's detailed plan review of the State of Michigan Emergency Management Plan, State of Michigan Nuclear Facilities Emergency Management Plan, Allegan County Emergency Operations Plan, Berrien County Emergency Operations Plan, and the Van Buren County Emergency Operations Plan which are site-specific to PNP. Per the Attachment to the June 27, 2025, Letter, "Region 5, 2025 Palisades Review Interim Approval Letter" final approval of State and county plans from FEMA will not be provided until the requirements for an exercise and a meeting with public participation are met, as delineated in sections 350.9 and 350.10 of FEMA's regulations, 44 CFR 350.9 – 350.10.

In a supplement dated July 11, 2025 (ML25192A144), Holtec stated that the proposed PNP Site Emergency Plan and the NRC's regulations in paragraph IV.F.2 of Appendix E to 10 CFR Part 50 require, among other things, that prior to resuming full power operations, Holtec must perform a "full participation" emergency preparedness exercise "which tests as much of the

licensee, State, and local emergency plans as is reasonably achievable." Holtec also stated that it expects to conduct such a full participation exercise in July 2025, which may be after the NRC issues its approval of this LAR. As noted above, FEMA's final approval of the State and county plans will not be provided until the requirements for an exercise and a meeting with public participation are met in accordance with FEMA's regulations. Accordingly, the NRC staff determined that a license condition is necessary to ensure that the full participation emergency exercise is completed, and any deficiencies identified by FEMA following the conduct of the exercise are corrected, prior to the resumption of full power operations. The NRC staff's proposed license condition is described in Section 6.0 of this SE. In its July 11, 2025, supplement, Holtec stated that it acknowledges and consents to the NRC's plan to include the license condition described in Section 6.0 of this SE.

The proposed license condition described in Section 6.0 would authorize Holtec to load fuel and perform low power testing at PNP, but Holtec would not be permitted to exceed 5 percent of rated thermal power until any deficiencies in the state of offsite emergency preparedness identified by FEMA following the exercise have been corrected. The proposed condition is consistent with the condition in place for combined licenses in 10 CFR 50.54(gg) that similarly requires that any deficiencies identified by FEMA following the exercise be corrected prior to the plant exceeding 5 percent rated thermal power. Additionally, while FEMA has provided its interim finding based on its detailed review of the plan, the proposed condition would ensure that any deficiencies identified by FEMA are corrected prior to the resumption of full power operations at PNP. Therefore, the proposed license condition is also consistent with 10 CFR 50.47(d), which permits the NRC to authorize fuel load and low power testing or training (up to 5 percent of rated thermal power) pending completion of FEMA's final review and findings. Furthermore, the NRC staff notes that the regulations in 10 CFR 50.54(s), which, among other things, discuss the correction of deficiencies related to emergency preparedness, are concurrently applicable to PNP notwithstanding the terms of the license condition. For these reasons, the NRC staff finds that the proposed license condition described in Section 6.0 requiring that any deficiencies identified by FEMA following the exercise be corrected prior to Holtec exceeding 5 percent rated thermal power at PNP is necessary to meet the NRC's requirements in 10 CFR 50.47(a)(2), 10 CFR 50.47(d), and paragraph IV.F.2 of Appendix E to 10 CFR Part 50.

On the basis of the NRC's staff's review described above, including its review of FEMA's interim finding as described in the June 27, 2025, letter, subject to the license condition described in Section 6.0 of this SE, and given the NRC staff's evaluation of the proposed PNP Emergency Plan (Section 3.1 of this SE) and EAL Scheme (Section 3.2 of this SE), the NRC staff concludes that the PNP offsite emergency plans provide an adequate planning basis and that there is reasonable assurance that the offsite emergency plans can be implemented in accordance with 10 CFR 50.47(a)(2).

3.4 Conclusion on Onsite and Offsite Emergency Plans

Based on its evaluation of the proposed PNP Emergency Plan (Section 3.1 of this SE) and proposed EAL Scheme (Section 3.2 of this SE), the NRC staff concludes that the onsite emergency plan establishes an adequate planning basis for an acceptable state of onsite emergency preparedness, and there is reasonable assurance that the plan can be implemented in accordance with 10 CFR 50.47(b) and the applicable requirements of Appendix E to 10 CFR Part 50.

Additionally, based on the staff's review of FEMA's interim finding (Section 3.3 of this SE), and subject to the license condition described in Section 6.0 of this SE, the NRC staff concludes that the PNP offsite emergency plans provide an adequate planning basis and that there is reasonable assurance that the offsite emergency plans can be implemented in accordance with 10 CFR 50.47(a)(2).

Furthermore, concurrent with the issuance of this amendment, the NRC staff is issuing its approval of the Exemption Request (ML25163A182), which among other things, rescinds exemptions from certain portions of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 that were previously granted based on PNP's status as a facility in decommissioning. The NRC staff's approval of the Exemption Request also allows for a one-time rescission of the PNP docketed 10 CFR 50.82(a)(1) certifications to remove the restriction that prohibits operation of the PNP reactor and emplacement and retention of fuel into the PNP reactor vessel. As such, this license amendment is effective upon the licensee's submittal of a request to rescind the 10 CFR 50.82(a)(1) certifications.

For the reasons discussed above, the staff concludes that, subject to the license condition listed in Section 6.0 of this SE, there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the PNP site, and that emergency preparedness at PNP is adequate to support the resumption of operations at PNP in accordance with 10 CFR 50.47 and Appendix E to 10 CFR Part 50.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The NRC staff's proposed no significant hazards consideration determination was published in the *Federal Register* on August 7, 2024 (89 FR 64486). On October 7, 2024, the NRC received two initial hearing requests on this LAR from: 1) Mr. Alan Blind on behalf of himself and Bruce Davis, Karen Davis, Jody Flynn, Thomas Flynn, Christian Moevs, Dianne Ebert, Mary Huffman, and Chuck Huffman, filed on September 9, 2024; and 2) Beyond Nuclear, Don't Waste Michigan, Michigan Safe Energy Future, Three Mile Island Alert, and Nuclear Energy Information Service (collectively, Petitioning Organizations). On March 3, 2025, the Petitioning Organizations filed a motion for leave to file new and amended contentions based on the publication of the Draft Environmental Assessment and Finding of No Significant Impact. On March 31, 2025 (ML25090A164), the Atomic Safety and Licensing Board (the Board) issued a Memorandum and Order denying both initial hearing requests. On April 25, 2025 (ML25115A265), the Petitioning Organizations appealed the Board's decision on their initial hearing request. On June 20, 2025 (ML25171A153), the Board issued an order denying the Petitioners Organization's motion for leave to file new and amended contentions. On July 15, 2025 (ML25196A132), the Petitioning Organizations appealed the Board's decision on the new and amended contentions. Both appeals are pending before the Commission. No public comments were received on the proposed no significant hazards consideration determination for this amendment.

Under the Atomic Energy Act of 1954, as amended, and the NRC's regulations, the NRC staff may issue and make an amendment immediately effective, notwithstanding the pendency before the Commission of a request for a hearing from any person, in advance of the holding and completion of any required hearing, where it has made a final determination that no significant hazards consideration is involved.

The NRC's regulation in 10 CFR 50.92(c) states that the NRC may make a final determination, under the procedures in 10 CFR 50.91, that a license amendment involves no significant

hazards consideration if operation of the facility, in accordance with the amendment, would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

As required by 10 CFR 50.91(a), Holtec provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed PNP POSEP and emergency classification scheme do not reduce the capability to meet the emergency planning requirements established in 10 CFR 50.47 and 10 CFR 50, Appendix E and do not impact the function of plant structures, systems, or components (SSCs). The proposed changes do not affect accident initiators or precursors, nor does it alter design assumptions. The proposed changes do not prevent the ability of the on-shift staff and augmented ERO to perform their intended functions to mitigate the consequences of any accident or event that will be credible upon resumption of power operations. The proposed PNP POSEP continues to meet applicable requirements and standards as well as provide for effective emergency response. The proposed PNP POSEP also continues to provide necessary response staff for emergencies as demonstrated by functional analysis and a staffing analysis performed in accordance with 10 CFR 50 Appendix E.IV.A.9.

   Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   Implementing the proposed PNP POSEP and emergency classification scheme has no impact on the design, function, or operation of any plant SSCs. The proposed changes do not affect plant equipment or accident analyses. The proposed changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed), a change in the method of plant operation, or new operator actions. The proposed changes do not introduce failure modes that could result in a new accident, and the proposed changes do not alter assumptions made in the safety analysis. The proposed changes reinstate the previous POSEP and modify some aspects of the emergency response organization (ERO). The proposed PNP POSEP continues to meet applicable requirements and provides for effective emergency response. The proposed PNP POSEP also continues to provide necessary response staff for emergencies as demonstrated by functional analysis and a staffing analysis performed in accordance with 10 CFR 50 Appendix E.IV.A.9.

   Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public.

The proposed PNP POSEP and emergency classification scheme do not adversely affect plant safety margins or the reliability of the equipment assumed to operate in the safety analyses. There are no changes being made to safety analysis assumptions, safety limits, or limiting safety system settings that would adversely affect plant safety as a result of the proposed changes. Margins of safety are unaffected by implementation of the PNP POSEP.

The proposed changes are associated with the PNP SEP and emergency classification scheme and do not impact operation of the plant or its response to transients or accidents. The proposed changes do not affect the Technical Specifications. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Safety analysis acceptance criteria are not affected by the proposed changes. The proposed PNP POSEP continues to provide necessary response staff for emergencies as demonstrated by functional analysis and a staffing analysis performed in accordance with 10 CFR 50 Appendix E.IV.A.9.

Therefore, the proposed amendment does not involve a significant reduction in the margin of safety.

The NRC staff reviewed Holtec's no significant hazards consideration determination. Based on this review and the staff's evaluation of the underlying LAR as discussed above, the NRC staff concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as allowed by the criteria contained in 10 CFR 50.91.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations on, the Michigan State official was notified of the proposed issuance of the amendment on June 3, 2025. The State official had no comments.

6.0 LICENSE CONDITION

In a supplement dated July 11, 2025 (ML25192A144), Holtec acknowledged and consented to the NRC staff's plan to include the following license condition to ensure that the full participation emergency preparedness exercise is completed prior to the resumption of full power operations. The staff's evaluation of this license condition is documented in Section 3.3 of this SE.

License Condition:

The licensee is authorized to load fuel and perform low power testing, but may not exceed 5 percent of rated thermal power until, following the conduct of the exercise

required by paragraph IV.F.2 of Appendix E to 10 CFR Part 50, the NRC notifies the licensee that the Federal Emergency Management Agency (FEMA): (1) has not identified any deficiencies in the state of offsite emergency preparedness; or (2) has informed the NRC that any offsite deficiencies have been corrected.

7.0 ENVIRONMENTAL CONSIDERATION

In accordance with 10 CFR 51.30, 51.31, and 51.32, the Commission has determined that issuance of this amendment would not significantly affect the quality of the human environment, as discussed in the NRC staff's environmental assessment and finding of no significant impact, issued on May 30, 2025 (90 FR 23071).

8.0 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.

Principal Contributor: J. Herrera, NSIR
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Date of Issuance: July 24, 2025

SUBJECT: PALISADES NUCLEAR PLANT - ISSUANCE OF AMENDMENT NO. 278 RE: REVISE THE SITE EMERGENCY PLAN TO SUPPORT RESUMPTION OF POWER OPERATIONS (EPID L-2024-LLA-0060) DATED JULY 24, 2025

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ADAMS Accession No.: ML25150A281

OFFICE	NRR/DORL/LPL3/PM	NRR/DORL/LPL3/LA	NSIR/DPR/RLB/BC	OGC – NLO
NAME	JPoole	SLent	JQuichocho	AGhoshNaber
DATE	05/30/2025	06/04/2025	05/20/2025	07/16/2025
OFFICE	NRR/DORL/LPL3/BC (A)	NRR/DORL/D (A)	NRR/D (A)	NRR/DORL/LPL3/PM
NAME	IBerrios	JPelton	GBowman	JPoole
DATE	07/17/2025	07/17/2025	07/24/2025	07/24/2025

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